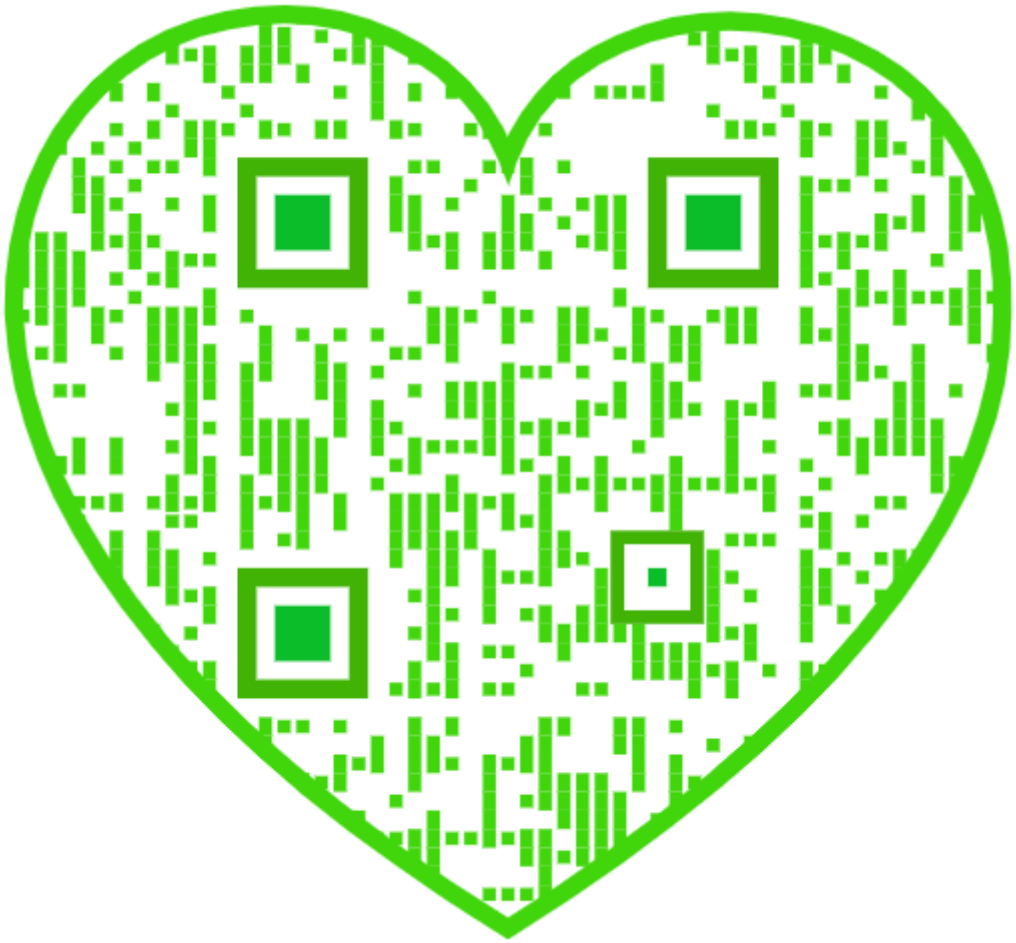

COURSE OF STUDY IN THE EIGHT GRADES

VOL. I

The MMCo.

COURSE OF STUDY IN THE EIGHT GRADES

VOL. I

GRADES I TO IV

BY

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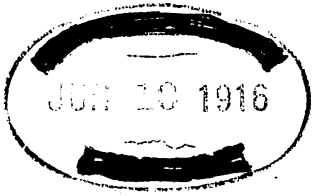

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PREFACE

THIS "Course of Study" is an effort to bring together the results of a series of labors, both theoretic and practical, upon the various branches of the common school.

During the last fifteen years the author has taken up one after another the common school subjects, and has attempted to work out the plan and movement of each study in proper relation to the whole curriculum. The result of this is a series of eight volumes of Special Method, in each of which the selection and arrangement of material for one study is carefully planned and the method of treatment is illustrated.

In bringing together the results of all these efforts into a somewhat full and complete course of study in two volumes, it has been found necessary to discuss in a broad way the chief problem in the present organization of the school course and to point out the adopted line of solution.

The task of laying out a liberal and practical course of study for the common school of America is one of very large proportions, and might well

employ the energies of the greatest mind for a full lifetime of well-directed labor.

The plain schoolmaster, however, must have a hand in this work, and this is our excuse for attempting what may seem to many a preposterous undertaking.

The present course does not include an outline in drawing and music. It is our hope that this part of the work may be accomplished later with the assistance of expert teachers in these subjects.

Those who wish for a discussion of the reasons for the courses here outlined will find them explained in the various volumes of Special Method as follows:—

Special Method in the Reading of English Classics.

Special Method in Primary Reading and Oral Work with Stories.

Special Method in Geography.

Special Method in History.

Special Method in Elementary Science.

Special Method in Arithmetic.

Special Method in Language.

Special Method in Manual Arts. (Now in preparation.)

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COURSE OF STUDY IN THE EIGHT GRADES

ENRICHMENT OF THE COURSE

In order to get a preliminary view of what has taken place in recent years in the enrichment of our school course, we will merely tabulate the various kinds of new educative material that have lately lodged themselves in the school.

First is the best literature suitable for young folks from the treasuries of our own country and of other lands. It reaches back into all ages that produced valuable literature and includes all varieties. This alone is a field abounding in rich resources. Closely allied to it is history, that of our own land and of other nations, including early traditions and stories, the striking epochs of the historic nations, the biographies of leading characters whether heroes, poets, generals, statesmen, pioneers, religious teachers, scholars, artists, scientists, men or women.

Second is the broad sweep of natural science studies, nature study in and out of doors. In its wide range this includes select contributions from a dozen great sciences, familiar to popular report, and each includ-

ing a body of knowledge far beyond the mastery of a single man of learning. Especially in its more striking and commonplace manifestations, and in its application to men's needs, science study is quietly pushing its way into schoolrooms and under the very noses of school-teachers.

In close connection with geography and natural science, industrial and vocational studies (directly and indirectly) are supplying us with rich materials and bulky text-books for children to master.

Out of all this, thirdly, is emerging the vague but gigantic form of a new study sometimes called manual training. It is now spreading its clumsy limbs somewhat promiscuously through the whole school course. No one seems to know as yet how large a place this intruder is to occupy, but a fear falls upon many that some of the old studies and teachers may have to move out of the way or shrink back into a corner to make room for this giant upstart.

Fourthly, the physical training of children is taking on larger proportions, and is demanding definite time and place in the programme with gymnasia and equipment.

Fifthly, there is getting to be a vague but pronounced feeling, almost conviction, that the fine arts have been badly neglected in schools and in the general scheme of education.

Sixthly, the primary school of late has taken up into itself a good share of the kindergarten ideas and

materials, games, stories, and social activities, while from the high school the grammar grades have begun to draw down algebra, geometry, German, and French, and even Latin to fill up what one might suppose must be a depleted course of study.

Seventhly and lastly, we should not forget that a goodly number of jealous schoolmasters demand that we shall begin to put some real stress on the mastery of reading, writing, and arithmetic.

Summing it all up, it is not too much to say that the school has begun to bring the whole range of human life and activity in select typical forms under its purview. This comprehends broadly the whole history of mankind in its typical and striking manifestations, the whole run of nature, animate, inanimate, and its relation to man, and all those great institutions, occupations, and traditional bodies of knowledge that man has accumulated in the course of centuries. A complete university with all its multitude of sciences covering the full range of human thought and experience has no broader foundation than the course of study in the elementary school.

But this is a very crude and superficial mode of surveying our course of study as a great accumulation of varied materials. It is far more interesting to ask ourselves: How came we by this enormously expanded course of study? How does it happen that in spite of powerful conservative tendencies and convictions of scholars, against the strong protests and

opposition of experienced school men and women, against traditions that have held their own in the schools for centuries, almost suddenly, in our time, the doors and windows of the school have been thrown wide open and all outdoors, past and present, has been taken in?

Evidently the school itself is not responsible for these results. Great forces have been at work outside of the school which have simply made themselves felt in the curriculum. As Dr. Dewey says ("The Educational Situation," p. 85): "This multiplication of study is not primarily a product of the schools. The last hundred years has created a new world, has revealed a new universe, material and social. The educational problem is not a result of anything within our own conscious wish or intuition, but of the conditions of the contemporary world."

The leaven of great changes has been at work in the whole social fabric, and has made itself felt also in the school programme. Throughout the whole school are heard the echoes of all the powerful ideas that are modifying society. The school is thus a miniature world and has naturally absorbed into itself the whole range of human occupation and experience. Through the medium of the school the great human world outside with its institutions and social ideas is trying to impress itself upon the child. The child and the world are the two great living agencies that have been acting upon each other, and the school is merely

a medium through which the contact is regulated. One might think that the world with all its power would overwhelm the child. But rational parents and teachers and all friends are naturally the child's defenders and advocates. We may say, therefore, that the two forces now at work so vigorously in shaping our course of study are society at large with its urgent demands and consideration for the child with his instincts and powers. This can be abundantly illustrated in the present studies. For thirty years now in this country the science studies have been steadily pressed upon the attention of teachers, just as in the world at large science has everywhere extended and intrenched itself. In the same way the commercial, industrial, and economic interests so powerful in business life have moulded and enlarged courses of study. The great moral, religious, and intellectual forces outside of the schools have likewise stood strenuously for literature, temperance, history, and civic instruction in schools. Manual training is a direct response to the demand for an experimental acquaintance with the fundamental arts of life and sympathy with millions of artisans in their daily toil.

Music and fine art beautify and ennoble life outside the school, — why not within? Whether we will or no, the school studies echo and reëcho the ideas taught in the religious service of the churches, bringing them thus into a much broader contact with other forces. It may be said that all the strong and valuable influ-

ences or forces in society are now sharing in the effort to mould our school curriculum. The circle of influences is now complete and the result is our present congested course of study. There is at least one advantage in this, — we know what we have to reckon with.

On the other side, over against the influences of society, stands the child with his protectors. Common sense would suggest that there is no use in crushing the child with the weight of this social curriculum, even though loaded with the good intentions of society. Psychology, child study, and experience with children in school and home must give us the standards by which we shall judge what part of society's demands are to be allowed. Every study that asks for admission to the school course, no matter by what social forces it is backed, must run the gantlet of criticism by child study experts. Child study not only criticises the new studies as they appear asking admission, but it sets up a number of positive demands of its own based upon experience with children, upon knowledge of their physical and mental growth, their reactions to educational stimuli, their instincts and interests.

In many important ways the study of children has modified the materials and activities of the school. The observation of motor activities, the study of muscular and nervous control, of the constructive and imitative instincts, the study of fatigue, of games and

plays and their uses, the care as to defective senses and abnormalities, the epochal changes in childhood and youth, have greatly influenced the treatment of children in schools.

We may say by way of summary that our present course of study is a necessary social product, the outcome of the strongest forces at work in the great human hive outside the school, but this has been modified, accommodated, and rationalized by a consideration of the powers and needs of children.

We may observe here that there is no real conflict between the child and the social world. By nature and inheritance they have the closest affinity and kinship. Not only the present world of industrial, political, and other social forces, but all the accumulated knowledge and culture of history are the birthright of the child. They are his food, drink, and exercise, if supplied in proper sequence and adjustment.

The education of children is therefore the working out of a comprehensive and all-sided social problem. Dr. Dewey says, speaking of the high school ("The Educational Situation," p. 79): "Our problem is rather to study the typical necessities of social life, and the active nature of the individual in his specific needs and capacities. Our task is on one hand to select and adjust the studies with reference to the nature of the individual thus discovered, and on the other hand to order and group them so that they

shall most definitely and systematically represent the chief lines of social endeavor and social achievement."

It is fortunate that this heaping up of new materials in the school course has come at a time when both popular and scientific attention have been unusually turned toward the study of child nature and growth. Without due respect for the natural powers and stages of growth in children, there would be no limit set to the quantity and variety of studies imposed upon the school. In the necessary enrichment of the school programme even the old studies, as well as the new, have been compelled to justify their claims from the standpoint of the positive needs of children.

As never before the demand has been made that studies be adjusted to the present needs of children rather than the future needs of adults.

This selection and adaptation of knowledge materials according to the peculiar needs of childhood, gives a special flavor and quality to this enrichment of the school course. It is by no means merely an enlargement and multiplication of studies. It is a select intellectual, moral, and physical diet, determined by a careful diagnosis of the conditions and needs of children. It means more nutritious mental food and better assimilation because it is better adapted to the tastes, interests, and powers of the young. The enrichment of the school course means the healthy expansion of the natural processes of child life, the

opening up of hearty and vigorous activities in all the main lines.

For example, a closer examination of the new historical material that has found admission to the fourth, fifth, and sixth grades will show a decided preference for biographical and descriptive episodes which children easily and naturally enjoy. The manual arts, as they are working their way into schools, are a direct response to the children's own demands for congenial activities. Excursions and experiments in elementary science are fully appreciated by children. Good music is one of the greatest delights from earliest years. Well-selected poems and stories from the best authors are now used with hearty appreciation in all grades. The games and physical exercises which are becoming an important part of the daily programme serve to give a healthy tone to the whole school life.

The result of this rational selection of appropriate labors and studies for children is a more complete absorption into actual life processes of all the culture elements of the school. It is a more abundant life which the children are sharing. A deeper and stronger current of actual experience is shaping their lives.

Of course the criticism is often heard that all this so-called enrichment of the school course is so much foolish indulgence of the caprices and pleasure-seeking whims of children, but an examination of the new

subject-matter that is being seriously incorporated into the course of study shows that it deals primarily with great and fundamental ideas that its ground purpose is to make strong the root connection between child life and civilization.

THE PRESENT PROBLEM IN THE COURSE OF STUDY

For many years our common school curriculum has been thus growing more extensive and complex. Let us give first a fuller analysis of this growth and increasing complexity of studies. New studies have been added from time to time. The old simple group — reading, writing, and arithmetic — was first enlarged by adding grammar, geography, and history. Later on music, drawing, and gymnastics were introduced. Then came nature study, domestic science, and manual training with its various forms of construction. In such a numerous list we had almost forgotten to mention spelling, composition, and language lessons. Besides the foregoing, various successful attempts have been made to introduce as distinct studies, civics, German, Latin, physiology, hygiene, temperance and the effects of alcoholic drinks, agriculture, bookkeeping, the elements of algebra and geometry, current events, and certain trades, as carpentry and printing. Religion is taught as a regular study in parochial and sectarian schools and in the public schools of Europe. There are thus more than twenty studies which by gradual

accumulation have held a more or less independent place in our course of study.

Besides this, as suggested above, many of the older studies, as reading (literature), geography, and history, have been greatly enlarged in their scope and quantity of material. American history, for example, was formerly taught only in the last year of the grammar school. Now it often extends through four or five years (from fourth to eighth grade) and includes a greatly increased quantity of historical matter. The literary materials used in our story work in primary grades and in the reading of classics in higher grades have had a broad extension. It is probable also that elementary science and manual training will soon require a much larger allotment of time and a fuller treatment than at present. Music, fine art, and physical education are likely to receive more attention in the immediate future. Many superintendents and secondary teachers insist that Latin should begin in the sixth or seventh grade rather than in the high school. Supplementary readers in geography, history, and natural science go much beyond the text-books in presenting a large assortment of additional knowledge for reference work.

When it is remembered that in a really good school children should spend much time upon outdoor excursions, in the school garden, and in the gymnasium, it seems evident that they will have

enough to keep them busy, both physically and mentally.

It would be fair to add also that children having a good family library are expected to extend the narrow boundaries of school instruction into the rich fields of history, literature, science, current periodicals, politics, and religion, and most of all perhaps in good biography and fiction.

As a result of this brief survey, it may be said that our present elementary course, if carried out, is overcrowded with the quantity and variety of materials. There are more studies than children can learn well, and more than teachers can teach well. Thoroughness of work in all studies is, under these conditions, impossible. As a consequence much school work at present is careless, superficial, and even slovenly. The efforts of earnest and progressive teachers to keep up with all these increasing requirements and to secure the needed additions of knowledge and skill are praiseworthy, but it is next to impossible to meet the requirements. Departmental teaching by experts in special subjects has been strongly urged as the solution of the problem. This would relieve the teacher, but would only add to the burdens of the children. For the tendency of experts is to make heavier demands in their special subjects. They would undoubtedly increase rather than diminish the crowded and overloaded condition of the school course. This course is primarily, however, for the

children, and should be adapted to their needs rather than to those of the teachers.

In the presence of this acknowledged congestion of school studies the whole body of teachers naturally falls into two distinct parties with opposing ideas as to the true remedy for the evil. First are those who demand a return to the three R's, to the old simple studies, with a few things well done and a course of study thoroughly practical. The argument favors a strong discipline upon a few essential things.

The other party stands strongly for the new branches, for nature study, manual training, physical culture, and the general enrichment of the school course with literature, history, science, geography, and fine art. The demands of both these opposing parties of intelligent and experienced teachers must be seriously considered, and an answer satisfactory and convincing to each be given.

We must admit that simplicity and thoroughness are essential to right education. The enrichment of child life through modern studies, as literature, history, science, and physical and manual training, are equally essential. We must admit, therefore, the justice of the demands of both parties. There can then be no return to the three R's, to the primitive course of our grandfathers. Boys and girls trained in the narrow curriculum of the old-fashioned studies would not be qualified for the new and complex conditions of modern life. Each age must have an education suited to its own needs.

Our present course of study is not a thing of caprice which we can change or modify at will. It is no mere invention of the schoolmaster. It is rather a world-product, the result of some centuries of steady development along educational lines. It is a very respectable product and contains probably the elements of the world's best wisdom in a form not yet fully organized and digested. It has taken more than three centuries of European and American history to bring together the crude materials and to give them a merely temporary arrangement. From the days of Comenius till now there has been a steady advance movement from a pure and narrow verbalism in the Latin tongue up through pictures, object lessons, geography, history, elementary science, and finally through manual training to pure realism. This progress has been strongly contested at every step by the forces of conservatism and reaction. Only those ideas have survived which have had a strength and vitality born of truth.

Having reached this final goal with these accumulated materials, our present task is to organize them into a consistent course of study. The present overloading of the curriculum is an inevitable stage in the evolution of studies. In Europe, where public school systems have had an earlier, longer, and similar evolution, a crowded curriculum has brought on the same acute problem.

Our present course of study, then, is due to large

world influences, over which the schoolmaster has had no control. He has attempted from time to time to stem the movement toward a broader, richer, and more realistic education, but under the influence of the reformers and powerful social forces, there has been no serious retardation of the onward movement. The school has been constantly under the pressure of masterful and moulding influences outside of itself, which have brought on our present curriculum. The school has become an epitome of the stronger forces at work in our modern life. We have now all the best ideas and accumulated materials out of which to construct a school course.

The main problem may be stated thus: How may we simplify and organize these studies so as to secure thoroughness of knowledge and discipline and leave out no essential studies? how meet the needs of growing children and the demands of society, so that children may enter mature life fully equipped?

ECONOMY OF SIMPLE AIMS

ONE of the chief advantages of a wisely ordered course of study is the economy of determining the *simple leading aims* which should control the teacher's work. These apply to the general aim of education for the whole school work and to the special controlling ideas in particular studies.

It is natural that we should be at first under control of many traditional aims and practices. These are, however, both numerous and conflicting, and the addition of many new studies has multiplied the complexity and confusion. Clear and controlling aims are the only means of bringing order out of such a chaos. A controlling aim in the whole plan or in a single study brings these forces into a common perspective, where we can adjust them to one another, cast out the wrong or perverted notions, reduce secondary matters to their true place, reconcile contradictions and bring the few essentials into coöperation and union. All this demands a very broad survey of the whole problem, a thoughtful and painstaking sifting out of theoretical and practical difficulties, and the constant focussing of the mind upon commanding and imperative needs.

When the controlling aim has been fixed, the secondary aims determined, and the means and methods which give practical and workable execution to these aims clearly defined, it is evident that a strong emphasis and persistent pursuit of these aims will bring about a marked economy of effort. Mere indefiniteness of aim causes waste of time. But clear aims also exclude large portions of some studies. In geography many whole lessons and numerous facts can be wholly omitted as not contributing to the aim. In history, likewise, the memorizing of long lists of events and tables can be omitted. Many lessons in science, language, and spelling are found to be useless in the light of important aims. Greater thoroughness can be gained by putting the time thus saved upon the few essentials. By means of clear and consistent aims in arithmetic, we shall drop out a number of antiquated topics, and in all topics omit those difficult problems that are mere tests of ingenuity and do not increase a child's mastery of fundamental operations.

This kind of economy, based upon a few organizing ideas, is our present need. It seems that now for the first time we have reached a full view of the complete circle of influences that round out the education of a child. Comenius had such a large view for his age, but the conditions were unfavorable to any practical plan of execution.

While it is true that each age must solve anew

this problem of setting up guiding aims from its own wide horizon of experience, it can hardly be said that any age has ever grappled with it seriously and consciously, even according to its own lights. But now with our over-accumulations of old and new studies, and with the pressure of modern social needs, the organization of school forces upon central ideas and aims is the only possible road to economy of effort.

To reduce waste, to eliminate non-essentials, to focus what is left upon a few large ideas, to bring even these larger ideas into subordination to an oligarchy of chief aims, and to put at the head of these aims the one purpose that dominates the whole, — this is to simplify and rationalize education.

A comprehensive and definite aim, worthy of supreme authority throughout the realm of education, may be stated thus, — the child should develop so that he will respond efficiently to the essential demands of his social environment and of his own individuality.

A strong will, under the guidance of the best ideals and reënforced by the resources of knowledge and right habit, is the citadel of such a character; and character, in this sense, is the aim of education.

It is not too much to say that our course of study is based fundamentally upon this aim; and we are beginning to see more clearly that a good course of study by virtue of its strong ideals and involved

educative activities is one of the chief formative influences in shaping character.

The presence of this dominant aim in the course of study is discussed somewhat fully in the second volume, under the title "The Moral Aim in the Course of Study."

Having given due influence to this controlling aim in shaping the course of study, the great problem that immediately follows is to find a simple organization of all the studies in harmony with this aim. This will be discussed in the following chapter, under the title "Simplification and Organization of the School Course."

The necessary modifications of the school machinery to adapt it to this modern curriculum are discussed also in the second volume.

The several problems of the selection and arrangement of the materials of knowledge in the particular studies under leading aims have been fully treated in the different volumes of Special Method. The course of study itself can give only the results as tabulated.

SIMPLIFICATION AND ORGANIZATION OF THE SCHOOL COURSE

WHILE the tendency to multiply studies and heap up facts in each branch has gone rapidly forward and has resulted in a crowded and congested school course, the principles have gradually come into view upon which a great simplification and a close organization of school studies may be worked out.

There are distinct approaches to the solution of this problem.

First, a strong effort is now made to eliminate useless and obsolete material from our studies. Under the pressure of a growing thoughtfulness among teachers, arithmetic has lost about a third of its old-time standard topics. Many good schools do not teach arithmetic at all in the first grade, and many obsolete topics and over-difficult problems once common in grammar grades have disappeared. Grammar has moved upward through the grades and threatens now to disappear out of the grammar school into the high school. Spelling and writing, to the chagrin of many good schoolmasters, do not receive the amount of independent attention they once did and have distinctly lost rank among studies. Incidental to con-

trolling studies they are taught as well probably as they were before.

Much of the independent language work once common has given place to language lessons bearing directly upon other important subjects of study, thus giving greater economy and efficiency to two studies at once.

Many of the trivial, mechanical occupations (busy work) in manual construction and in natural science are being dropped. These marked tendencies show clearly that we are getting rid of superfluities, whether they be remnants of old studies or frills of the new ones.

In the second place, we are making progress in actually reducing the number of studies by incorporating or absorbing partly independent studies into the body of the more important branches.

Physical geography, once independent in the eighth grade, has been brought under the domain of geography proper. It is clear that physical geography can perform its function much better as an ingredient of regular geographic topics than when set apart as a separate study. Various efforts have been made to elevate civics into an independent study in grammar grades, but we think that the chief ideas in civics can be better taught in regular history topics, where their genesis is explained, than in isolated studies of abstract constitutions (as a separate study).

In a similar way elementary science, as the central

study, is absorbing into itself several groups of partly independent subjects, such as the lessons in health and hygiene, temperance and the use of alcoholic drinks, physiology and physical training, the theory of foods and cooking.

Gradually the chief central studies have been coming into view, and the subordination of the less important ones to the central lines is apparent.

Third. This effort to sift out the main things, the organizing centres of study, brings into view our chief problem, that of the simplification and organization of the school course.

An examination of the leading topics in history, geography, literature (reading), elementary science, and mathematics will bring out the truth that they all spring from *common sources* or centres. In one sense, they are not distinct studies, but phases of great topics common to all studies. The Revolutionary War, for example, is a common centre from which history, literature, geography, drawing, language, and even mathematics draw important lessons. A great epoch in the life of a people contains within it all the elements of civilized life, and so reveals a phase of all studies. The feudal period in Europe has its historical side, its biographical side, its religious side, its literary side, its scientific side, its art side. The life of Washington is inevitably an important centre of thought for our school course. But Washington's life has

distinct social, political, historical, geographical, literary, industrial, and domestic phases. From the life of Washington are drawn important lessons for government, morals and manners, history, reading, literature, composition, and even writing and mathematics.

Any large masterpiece of literature, such as "The Courtship of Miles Standish" or "Snow-Bound" or "Marmion," describes a social condition which involves many phases of life that should be distributed to various studies. The drift of our studies is more and more toward a few such common centres, the chief national and world epochs, a few masterpieces of literature which describe such epochs, a few leading biographies, a few chief religious, political, or social ideas. These are common centres in which all studies have their roots and from which they derive their strength. The home or the family, for example, is the central idea of such poems as Whittier's "Snow-Bound," Burns's "Cotter's Saturday Night," Longfellow's "The Children's Hour," Dickens's "Christmas Carol," Tennyson's "Enoch Arden," and of many other poems, biographies, and novels. Not only are the home and home neighborhood becoming the starting-point for studies in literature, but also for local geography, history, arithmetic, and elementary science. The home garden, the sanitation and ventilation, health conditions, food and clothing of children, are fundamental home lessons in

science. The needs and economies of the home furnish many of the best topics in geography, arithmetic, manual training. As the primary, fundamental institution of our society, the home is rapidly taking its place as the greatest centre from which all studies draw their lessons.

The central institutions of society, the family, the religious institution, the local town or municipal centre, the state and nation, the primary occupations, the chief typical epochs of national life, are rapidly taking on such importance as to become the centres from which all studies spring. Fortunately, these great ideas and institutions are relatively few. They are in marked contrast to the multiplicity, complexity, and almost chaotic miscellaneousness of our present course of study.

It may be said, in order to simplify and centralize still more the idea of the school, that all its studies are focussed upon our modern social life, that all its lessons are designed to illuminate home and community aims and to bring children into intelligent, practical relation to them. But such a statement is so general that it fails to show how closely intertwined are the roots of the chief studies in the few main centres from which they all spring.

It is worth while to discover that all studies reach back with living roots into common sources, into a few great social ideas and institutions. This is the basis for simplicity and for the possible close organi-

zation of all the studies. We shall find that the leading topics of the several studies are phases of these larger units which no single study can comprehend. Each study presents an important side of a number of these centres. The colonial history of New England, for example, has its religious and theological aspect, its social and family life, its commerce and industries, its geographic and climatic conditions, its governmental growth, its modes of travel, its architecture and dress, its literary materials, its stirring biographies, its schools and colleges, its simple tools and machines, its primitive uses and ideas of science. Every school study can draw materials from this colonial period and does draw them. It may be observed that these common sources of study are not the peculiar possession of any one study, but are practical *life centres*, where all the ingredients are held together in a common solution, in a social ferment. If properly selected and arranged, they form the focal points in our educational course.

Turning now to the individual studies, do we find a few large topics which are the organizing centres for each? Our present course of study fails to bring them clearly into prominence. Yet the necessity for simplification and organization is so great that we are beginning to throw out the chaff and even to select the more important topics as distinguished from the less important and from the multitude of details. It

is in this direction that a satisfactory solution to our present school problem can be confidently sought.

At present we have too many so-called important facts in geography, in history, in literature, in arithmetic, in science, and in language. We are like a child in the orchard who has filled his pockets and hands with apples. In trying to pick up more, he drops as many as he takes. We must adopt the principle of selection and even go a long way toward the example of the merchantman "who was seeking goodly pearls."

An example will best illustrate this idea of selection. Among important facts which a child in the eighth-grade history learns is this, that in the summer of 1787, fifty-five men, representatives of the different colonies, met in Philadelphia, and after four months of debate and deliberation worked out the constitution of the United States and recommended it to the people. It was then submitted to the conventions or representative assemblies of the states, and when ratified by a sufficient number of states, became the fundamental law of the land. This is one of the half-dozen "important" facts which a child is required to learn and recite in a single lesson. Some teachers would deem this topic, however, of sufficient importance to spend a whole day's lesson upon it. We will suggest a still ampler treatment of it.

First, as to the causes which led up to the meeting

of this congress. At the close of the Revolutionary War the states began to fall apart, to grow jealous of each other, to take advantage of one another in trade regulations and tariffs, and to foster a strong spirit of hostility to each other. Examples of this should be given as in the relations of New York with New Jersey, and between Connecticut and Pennsylvania, which came near to actual war and bloodshed. The same happened in the relations of Vermont with New York and New England. The Continental Congress did not have power to levy taxes so as to pay the debts of the war, and our credit in Europe was so low that there was little but contempt for the union of the states. George III was even hoping that some of the colonies would soon be coming back and begging to be taken under his protection. The danger of conflict between the states was so great and the financial troubles in the several states were so pressing that patriotic men had serious fears that the country was on the verge of ruin. It was this desperate condition of affairs that brought these leaders of the people together in search of a remedy.

Second. It is worth while to study the character and previous history of a few of the leading men of this Congress and what ideas and experiences they had gathered which would qualify them for constitution-making. It is very interesting, in fact, to examine into Madison's, Franklin's, Randolph's, Hamilton's, and Dickinson's careers to see what local ideas and

convictions they held. For it was a great variety of conflicting and diverse ideas that the men of the convention stood for.

Third. When we examine the provisions of the constitution, we may notice that they are drawn chiefly from the constitutions of the various colonies. The materials out of which these men built a constitution were those which had been wrought out by nearly two hundred years of struggle and conflict under hard conditions in the various colonies.

The men of the constitutional convention were not primarily theorists. They had had experience of government in their local colonies which had made deep and lasting impression. Two hundred years of American history had collected the materials out of which wise men, not without serious discord, built a new central government. This constitution is the focussing in one instrument of all the powerful ideas which American history thus far had brought out. To study the making of it, therefore, is to get at the real meaning of all that earlier history and what it led to. It is a searching review from the standpoint of fundamental needs of all our earlier history.

Fourth. The Congress had not been long in session before bitter and apparently irreconcilable differences arose. There were hard words and stormy debates, and some members went home in dudgeon. The conflict of opposing men and ideas was so fierce that it looked as if the assembly would

break up and separate with nothing done. The smaller states would not yield to the larger states in the matter of unequal representation according to population. In final desperation the compromise of equal representation in the senate and unequal in the house was suggested. It met with little favor at first. But the minds of the members being once turned toward compromise, they were led on gradually to the great compromises of the constitution. The conflicts between the northern and southern states on the subject of commerce and trade regulations and of slavery were at length worked out.

Fifth. When finally they had reached substantial agreement, though some of the members had gone home in disgust, it was apparent that the constitution as adopted was satisfactory to no one. Wise men, however, were willing to yield their personal views for the sake of securing a central government which would perhaps bring harmony and proper control to the whole country.

Sixth. It will appear later that the compromises of the constitution were the seeds of the great conflicts, which in the more than a hundred years since have agitated the people. Our history since 1787 has been a series of strenuous conflicts and determined efforts to give proper interpretation to the constitution. On this basis political parties have been founded, wars have been waged, and presidents elected. At the time of the adoption of the constitution the real

importance and significance of nearly every great man could be determined by his attitude toward the constitution. But the same may be said of nearly every great statesman since then, as Clay, Webster, Jackson, Jefferson Davis, Marshall, Lincoln, etc.

We may summarize the argument by saying that the framing of the constitution was the focussing in one great instrument of the ideas and influences of two hundred years of rugged American history, and on the other hand the chief issues of our later history can be traced back to this constitution as their starting-point. For one hundred and seventeen years the American people have been living in the house which the wise men of 1787 built, and it seems probable that countless millions will find in the coming years, or centuries, their home under its roof. We elect congresses and presidents and frame the constitutions of new states in the manner which these men of '87 dictated to their descendants.

In other words, judged from the standpoint of far-reaching importance, this meeting of the constitutional congress in 1787 with its work is an event of overwhelming importance. Compared with this event other great events dwindle almost into nothingness.

To work out these various points up to the time of the ratification of the constitution by the states and to illustrate each point by examples will require many lessons.

Instead of spending one-sixth of one lesson upon

this topic, we are inclined to say that with an eighth-grade class we can well afford to spend a month upon this single topic (up to the adoption). Such is the place which its *relative* importance among events demands.

This may serve as an example of what should be done in the direction of sifting out and emphasizing the really important topics in history, and in allowing a host of secondary facts to take a merely subordinate place in relation to them. In history and in geography we have accumulated such a quantity of so-called important facts that it takes all a student's time merely to memorize the important items, having no time left for a proper illumination of essential topics or for estimating the relative importance of the facts.

What is true of history in this respect is equally true of geography, science, and literature, and to a considerable extent of other studies. Just as the Japanese and Russians are now contending for the possession of one or two commanding positions so as to control large areas from them as centres, so the student can afford thoroughly to invest the strongholds of his subject, lay siege to them, take full possession, and thus dominate wide areas of knowledge. Enough has been done in this way to show its complete feasibility in the great knowledge subjects, such as science, geography, literature, and history. The masterpieces of literature are standing illustra-

tions of the organization of many-sided materials around central ideas. Whether it be an epic of Milton, a poem of Browning, or a novel by Scott, it is organized around a central idea to which it is the genius of a great writer to give complete illumination. Lowell's "Vision of Sir Launfal" is the setting for a single transcendent thought. The master-thinkers have fully understood the organizing power of a single idea, and have not hesitated to squander their whole wealth of imagery in clothing such a thought. Our school studies have become encyclopædias, instead of magazines of vitalized thought. We try to satisfy children with abstracts, epitomes, dictionaries, rather than with stories, poems, ballads, biographies, novels, life histories, and epoch-making events or ideas. This mistake is a profoundly vicious one in education. The poems of Homer were the text-book of Greek children, leading up to that age of Greek culture which has been the marvel of later ages. The Hebrew boys and girls were brought up upon the Bible stories and poems. American children are not likely to be properly nourished upon the dry husks of epitomized text-books.

What we need in all the knowledge subjects is the selection of a few centrally important topics for each year and to give them full, rich, and adequate treatment. This full, concrete setting is the soil in which an idea can take root and grow. An epitome or a dictionary furnishes an all too scanty soil for the growth of

ideas. Besides, there is a desert dryness about it which is unfavorable. Twenty large topics for a year's work in geography will answer the purpose, and likewise in history. A few strong poems, stories, and masterpieces each year, with a number of shorter ones sandwiched in, will serve all the purposes of good reading work.

In our treatment of this subject of controlling centres in the "Special Method in Elementary Science" we pointed out five large centres. the home, the school, life groups in nature, the primary occupations, and the local city or town. . In home geography, also, seven large topics were chosen. In history a few leading types were selected for each year.

On the basis of the previous discussion, we may suggest three stages of this organization of subject-matter upon central topics in studies. First, those large institutions and ideas, or world epochs, in which all the studies of the school course are more or less focussed. Second, those large topics which constitute the main centres for each study. Third, the smaller *type studies* into which these topics easily fall. In most cases, the types form the large lesson units, each of which admits of a complete and rounded treatment. As the treatment of a type involves a whole movement of thought, it also forms the basis of method, *e.g.* Burgoyne's Campaign, New York City, The Maple Tree.

The discussion of the type has been fully given in the "Method of the Recitation," in the "Special Method in Geography," and in the "Special Method in Science."

The purpose of our entire discussion so far is to show the possibility of securing a greatly simplified course of study, centring in a few important topics in each study, and enabling us to lay aside the heavy burden of encyclopædic knowledge, *i.e.* of endless and burdensome details.

It is necessary, of course, to arrange this series of leading topics in each study in a coherent and properly developing sequence.

There remains to be explained and illustrated a series of principles by which the execution of this plan of simplifying and organizing the studies upon leading topics can be worked out in detail.

The correlation of studies is fundamentally provided for in the original selection of a few great centres upon which all studies are focussed. The studies which are thus related to a common centre are but parts of a whole. They are merely phases of one object, different points of view from which the same object is studied. This implies first of all a close organization of studies. Each study is a review of many of the same facts presented in other studies, or a first view of those to be later presented in other branches. Such a natural plan of correlation depends, however, almost wholly upon the general selection

and laying out of the course of study, that is, upon focussing of various studies in a year's work upon common objects. Our present course of study was not laid out with regard for any natural plan of correlation. Each study goes its own way without much thought for the companionship with other studies. But there would be a great economy and saving of time if they would travel only the main highways and travel them together. In a language lesson, when a teacher must first hunt up some good topic and explain and present it to children before they can write upon it, she is wasting much and valuable time. The lessons in history, science, and geography have already worked up a number of such topics; they are fully prepared for use; they are instructive and interesting, and it would be a decided benefit to the better mastery of topics in these studies if they were worked over in a language lesson. There would be a positive economy on both sides in having the language work in conjunction with the other studies instead of apart from them. A history lesson that requires the sketching of a map of the Ohio Valley or the coast of New England teaches in an interesting way a number of important geographical facts which otherwise might require a full geography lesson. If it happens that the history and geography of the Ohio or of New England fall in the same year, there is a decided economy and simplification of work.

The Hudson River is an important topic in geography. It is equally important in the history of the French and Indian War, and in the Revolution. The stories of Rip Van Winkle, Sleepy Hollow, Dolph Heiliger, and others of Irving give the region of the Hudson an equally large place in the reading lessons. The physiography and geology of this valley are also of much interest to children. These various studies furnish excellent topics for language lessons and for drawing. The cities, bridges, shipping, water commerce, and railroads along the river valley need to be measured and estimated by the quantitative standards of arithmetic. All these are natural and essential phases of a larger complex unit of study. It can hardly be laughed out of court as a forced or artificial correlation. This topic cannot be understood without seeing it from these various points of view. Each study prepares the way for a quicker and better assimilation of this subject by those which follow. Each subject awakens an interest which strengthens the work of all the others. Each new study reviews and explains the same facts from a new standpoint. Taken as a whole, such a large subject treated from the standpoints of various branches acquires a certain commanding influence as an important and interesting centre of thought. If it is also typical, as in this case, it interprets scores of like valleys in other parts of the world.

But, after all, just where lie the economy and the

saving of time in treating large subjects in this way? This also can be best seen in an example.

Suppose now that instead of thus closely relating these lessons on the Hudson in the course of a year's work, we substitute for these the geography of the Hudson, the metric system in arithmetic, the story of Grant's campaign around Vicksburg, the reading of Arabian Nights, drawing lessons from geometrical forms, the physiography and geology of the Alps, and language lessons from Gulliver's Voyage to Lilliput.

The latter series of topics it would take, probably, twice as long to work out. The lessons would not mutually support one another so as to admit of rapid assimilation. Review of the same facts from new points of view would not take place, but frequent repetitions and bald reviews would be necessary to fix the isolated facts in mind. There would be a much wider scattering of thought over a larger area of unrelated facts, but no strong centres of influence, no well-organized body of knowledge would result, either in the separate studies or in the whole group. The lack of connections, of binding relationships, is what makes such scattered knowledge so difficult to acquire and so hard to hold in mind. Comprehensive insight and interest depend upon discovering and understanding relations. But the relations upon which knowledge is best organized around centres of study are mainly lacking in such scattered and miscellaneous

topics. The result, therefore, is a very large expenditure of time and effort with a minimum result of real knowledge. It is a very wasteful and uneconomical mode of learning.

But the full strength of the argument in favor of organizing the knowledge of many studies around common, important centres does not appear in this somewhat superficial illustration of the principle of correlation. We have noticed in a proper correlation of geography, history, literature, and language about larger topics that the history lesson *incidentally* and necessarily teaches many things in geography, literature, and language, and the literature, *vice versa*, much in history, geography, etc. No topic in history can be taught well without such incidental inclusion of illuminating facts drawn from other subjects. Correlation encourages and necessitates this sort of incidental teaching. Things thus taught are brought in because they are necessary to the right grasp of the subject. They have some causal connection or some intimate bearing on the main theme, which makes them essential parts of the story. They often give richness, color, and concreteness to the treatment. The causal relations between the facts of different studies are so close and strong that the reasons for facts in one study are often sought in another study. Now if the related topic in another branch is soon after taken up, we have a motive for studying it and a vantage-ground of actual knowledge. We are on an old

camping-ground and know the trails. This is of primary value in attacking new fields. Such transitions are desirable in every stage of study. They greatly facilitate acquisition.

But the principle of incidental teaching applies not only to related knowledge in different studies, but also to the right organization of knowledge in a single study. This is well illustrated by the example of the congress of 1787, previously outlined. Incidental to the treatment of this great topic there was a sifting out of the main ideas of two hundred years of history, an inquiry into the immediate causes leading to the assembling of the members, much light casually thrown upon the character and ideas of the leading men engaged, and suggestion of results. All these and many other facts are mere incidents to a great central problem. A large topic in any study has just this organizing power, this coercive energy, by which it gathers up and focusses a large body of interesting knowledge. We might say that the great majority of facts in any study should be acquired incidentally, that is, tributary to a few central, controlling ideas. The main facts are the officers and generals of the army, the great body of facts are the men who obey the leaders. One of the chief criticisms of our present course of study is that it consists of a large collection of independent important facts. No independent fact has any importance to a child's mind, nor can have. To

learn a great many of these facts and to call them important is also of no avail. To discover the importance of a fact by tracing up the causes which led to it, and the results which sprang from it, and the quality and force of the idea it represents — this is the only way to get at meanings, to become intelligent. To surround and lay siege to the central strongholds of study, to bring to bear the forces of different studies like converging armies upon these main citadels of knowledge, this is a prime secret in any successful effort to lay out a simple but strong course of study.

But in order to bring about this result we must reduce a great many facts that have been masquerading through our text-books as important to a far lower rank, and we must elevate a few of their nobler fellows to a much higher station. The regal facts and ideas must be brought out in their full strength, the plebeians must be reduced to their proper level. There is no other way by which children can be brought to understand the simple and fundamental things of life. The vast armies of facts are merely the subjects and playthings of the few kingly ideas. We must learn to subordinate, to incidentalize, great hordes of facts in the studies and even to ignore them, to count them as nothing, unless they contribute to the clearer grasp of a few essentials. There is no democratic equality among facts and ideas. They differ far more widely in

importance than men do in their native birthright. The fact that they stand together in the text-book, on apparent equality, is very deceptive. If we will but focus the energies of children upon the few organizing centres, the multitudes of facts will quickly marshal themselves into ranks and respond to call. All facts are at the command of him who knows where to put them when the need arises.

The principle of incidental teaching applies also on a large scale to the group of language lessons, spelling, drawing, and writing as related to the group of geography, history, literature, and science. The formal studies, spelling, language, writing, and drawing, are constantly employed in the other studies as incidentally necessary. The content studies furnish the material of thought which the form studies need, while the form studies are an essential means of expression for the content studies. To bring these studies into the closest mutual relation and support is a great economy. To keep them apart and to set up wholly independent courses for the two groups of studies is a duplication of work and a waste of energy which can have no defence.

The economy of time and effort secured by a proper correlation of these studies is discussed and illustrated more fully in the "General Method," chapter on correlation, and in the "Special Method in History," chapter on the correlation of history with other studies.

A marked economy of effort and time is achieved also in the treatment of types (which are important units of study). The comparisons which are regularly instituted when the type idea is extended to many other similar objects involve two great economies in study: first the rapid extension of the type idea to a large group of similar cases, by which they are at once interpreted in their full meaning, and second the excellent review thus afforded of many important topics previously studied. This alone would eliminate a very large part of the present waste in our studies. The treatment of important types is destined to have a great place in school work. The type treatment moves rapidly to a broad and deep insight into a multitude of similar things. By comparison with earlier studies it also constantly works over the old knowledge from new and interesting points of view, and almost abolishes the old routine review. From the early days of the Jesuits till now, strong schoolmasters have laid great stress upon thorough and oft repeated reviews. In spite of this, mere reviews and repetitions of things previously learned are a bane to education. They are a cumbersome and extravagantly expensive mode of clinching ideas. They are a capital device for producing dulness; that is, they are laborious, uninteresting, and lacking in intellectual stimulus. An over-emphasis of sheer memory will not answer the purposes of modern education. Large units of study

which are types and thoroughly worked out offer a constant opportunity to review, revise, and extend one's previous studies, and this is, in a very high degree, stimulating and educative. Heretofore the review idea has so dominated our courses of study and modes of teaching that it is hard to realize that it is a cumbersome and wasteful method of gaining and holding knowledge. But a review of old topics, unless it contains the elements of comparison with new topics and the weighing out of relative values, is not an appeal to intelligence. It is an over-emphasis of the humdrum and the mechanical.

Reviews by comparison strongly suggest the omission of a large share of our present repetition drills, and the abolition of courses or study based upon such repetition drills. Our courses of study in geography, arithmetic, history, and grammar have been based largely upon the idea that children cannot clearly grasp the meaning of what they study but by successive repetitions, by going over the same topics three or four times in the common school course, they will gradually arrive at clearness in the essentials. (Concentric circle idea.)

Such a course of study is equivalent to an acknowledgment that topics cannot be properly graded, but must be simply hammered at in a sort of blind routine, until in some inexplicable way they work themselves into consciousness. Reviews by comparison bring a far more intelligent and thought-producing

kind of repetition. They keep a child perpetually on the alert to revise and clarify his previous acquisitions. In fact all his advance lessons should be learned in the light of his previous studies. This brings us to the final summing up of the whole argument in the notion of the constant *use* and *application* of knowledge. This is the true principle of thoroughness in study. We have given a chapter to this point in the "Method of the Recitation." "How should general notions be applied?"

We will add here a discussion of the child's power to use or apply knowledge regarded as a standard with which to test the excellence of his work, that is as a measure of his proficiency in knowledge. We need to say but little of the thoroughness due to use or application. The power to apply knowledge is really a higher form of discipline to self-activity and self-reliance. It implies a certain degree of versatility and originality to fit knowledge to the new situations that are constantly springing up. The fixity of knowledge produced by reiteration and memory drill is a useless product compared with the alert thought and ingenuity needed in adjusting one's knowledge to novel situations. In truth the application of knowledge to ordinary uses is the severest test of real mastery that can be found. So true is this that we may better ask ourselves, Is not this test too difficult for children? Does not the use of knowledge now acquired belong to a more mature age, to later years?

In answer to this we need only to recall the versatile activity of children, the overplus of energy they expend in doing things. They are preëminently doers, spontaneously fertile in modes of carrying ideas into execution. The imitative and motor impulses are so strong in children that it is hard to awaken their interest in anything of which they can make no use. The mastery of knowledge by the routine of memory drills, be the discipline never so rigorous, is far inferior in its training quality to the versatile use of knowledge in the ordinary forms of application.

It would be worth much if we could establish a safe standard of proficiency, that is determine the degree of excellence which should properly characterize school-acquired knowledge. At present we can hardly say that there is any commonly recognized standard, but it depends upon the whim, opinion, or temperament of the teacher.

At this juncture we are disposed to set up as a rational standard of thoroughness and proficiency in knowledge the ability to make application of it as the need arises. In writing, for example, a child should write so plainly and legibly that his work can be easily read. He should speak and use English so correctly that he may be well understood and appreciated on all occasions where he has need to speak and write. He should spell correctly what he has occasion to use. He should dwell chiefly upon the

simple fundamental operations of arithmetic, because these he has frequent chance to employ.

One of the chief advantages of this standard is the economy it brings in lopping off all those superfluous and showy excellences in which the schoolmaster sometimes takes pride. The fine penmanship of younger children, gained at such expense of nerve and strain, the extraordinary speed and accuracy in arithmetical work which surprises adults, the perfectly executed maps and drawings, which exhibit such a waste of time, the swift reading and reciting which reveal that the children have memorized what was not intended for memorizing, the brisk spelling of all sorts of rare and freakish words without knowing the meanings, the empty recital of rules, phrases, and paragraphs in all sorts of lessons — all these hobbies of the schoolmaster by which he deceives himself and others into the belief that he is getting first-class training can be pruned away, and we shall still have left the substantial part of the school work which serves the real purposes of life. Many of our best teachers push children on to these premature virtuosities, these striking exhibitions of mental keenness and power. The skill and dexterity attained are far in excess of the present needs of the children, and, like piano-playing or Greek, will pass out of the mind unless persistently kept up. The idea that the discipline gained will make up for all losses is one of those long-lived myths which is at last rapidly disappearing

before a more rational view of education. A large portion of the time of children is now wasted by excellent teachers in gaining a formal excellence in studies which is beyond the present needs of the children, and has no defence except on the basis of the exploded doctrine of formal discipline.

Our standard of excellence measured by the power to use knowledge brings us a priceless economy in an overcrowded curriculum. It lops off a host of cherished superfluities. On the other hand there are several studies which will be lifted to a much higher proficiency by this standard of power in use. It involves the strengthening of our language work (the vernacular) from a feeble to a rigorous instrument of culture. The weak and unsatisfactory results of our present language work are universally acknowledged. But if we set up this standard of the correct and fitting use of English in all our studies where it is needed, if we are clear in our aims and steady and persistent in our use of the means at our disposal, we shall attain this most important result. Moreover, in attaining it, we shall secure a higher form of mental training due to that ever present alertness and versatility which the use of choice and correct language in all studies demands. There is at present a curious contradiction in our general attitude toward the study of English. It is regarded as too easy a subject to supply the strength and rigor of a real disciplinary study. On the other hand it is so diffi-

cult that we have not been able to get a correct and facile command of it by young people. This contradiction suggests that we have no clear standard and no definite means of reaching one. Our standard of excellence, facility in the use of language as needed, when vigorously applied to our teaching of English, will give to the mother-tongue its natural and fundamental importance and will make the correct and apt use of it a distinguishing mark of culture.

It was stated above that the standard of excellence, based upon the power to apply knowledge, was in harmony with the needs of childhood because of their natural bent actively to execute ideas. This standard also adapts itself well to the immature and developing powers of children. If children can make a fairly good use of what they are learning as it accumulates, we should be richly content. More than this, adult standards of excellence, the effort to anticipate future needs, and to lay up stores of superior excellence against a coming evil day — all this ignores the present needs and capacities of children. It is an imposition by the teacher upon the child. It throws the educational machinery out of gear, and substitutes for a natural and gradual development, a forced and artificial strain after results, which, even if attained, involve injury to children, and no real profit.

This standard may be judged also from the standpoint of the right formation of *habits*. The chief

advantage in having right habits is that they relieve the strain of voluntary effort and turn over to the machinery of the mind much which would otherwise be burdensome. It is generally admitted that where voluntary actions become involuntary (become habits), further perfection in these habits is uneducative. It is safe to develop habits up to the point of use, but beyond that the over-emphasis of formal habit is a misdirection of energy and also tends to give fixity to mental action before the period of growth is ended.

This standard of measuring the quality of knowledge according to its necessity for use is a close adaptation to the immature and growing powers of children; it shows the common temptation and danger of premature and showy excellence, and of producing arrested development by attaining a rigid formal skill.

Nor does the standard of a moderate and usable degree of excellence imply that careless habits are being formed. It should always be remembered that habits are formed gradually rather than by short spurts toward excellence, that the whole tendency of human development is gradual and slow, and in this lies the immense superiority of the human species over animals, whose instincts are completely formed and usable at birth, or develop very rapidly to their full perfection.

We may summarize the main points as follows: —

1. By centring lessons in several studies upon common basal units, each study incidentally reviews and applies the others.

2. The proper correlation of different studies requires that they be laid out along parallel lines so that each is constantly surveying the domain and the riches of the other.

3. The types into which the larger units of any study fall organize the materials of a study and of related studies around controlling centres of thought, and bind the parts together by close causal connections.

4. The type study by the use of comparisons gives a wide-reaching extension and application of an idea into related fields, and greatly simplifies knowledge.

5. The type studies are the basis of constant and systematic reviews by which old topics are brought into vivid relation to a new and expanding horizon of thought.

6. The doctrine of apperception is simply a clarification and emphasis of this idea of the perpetual use and application of old knowledge and of new knowledge as fast as it is acquired.

7. The final step of *application*, which follows the inductive working out of a general truth, brings all knowledge into direct life relations, and calls for that rational self-activity and versatile power for meeting emergencies which are the final test and security for right education.

8. The ability to make application of knowledge as the need arises is the best general standard for testing proficiency and thoroughness in knowledge.

9. All these principles combined secure an organization of knowledge upon a few essential centres, a reduction of waste, and a system of incidental reviews far more effective in the mastery and use of knowledge than our present superficial, scattering course of study with its elaborate system of formal reviews. Simplicity, economy, and efficiency may thus be brought into our school course.

If these things can be accomplished, they will give us instead of our present congested curriculum, with its careless and slovenly work, a course of study which is simple and thorough and yet contains all that enrichment which modern studies and modern life demand.

ORAL WORK IN LITERATURE

In the first three grades, a series of choice stories should be treated orally by the teacher and regularly reproduced by the children. The lessons in this oral story work are given daily and run parallel to the regular exercises in learning to read. In the first grade these stories are selected mainly from standard folk-lore and fairy tale; in the second grade Robinson Crusoe, Hiawatha, and other longer stories are used; and in the third grade, the best renderings of the Greek and Norse myths, and other legendary tales, are exploited.

These stories (in the first three grades) are primarily valuable for their lively, worthy, and world-building thought material, so that they greatly aid in making the school a happy and homelike place. Secondly, they are the best possible contribution to good English, while they open up the way to drawing and constructive activities.

FIRST GRADE

FIRST TERM. FALL

1. The Old Woman and Her Pig.
2. Little Red Riding Hood.

3. The Anxious Leaf (Beecher).
4. The Three Bears.
5. The Lion and the Mouse (Æsop).
6. The Little Match Girl (Andersen).

SECOND TERM. WINTER

7. The Fir Tree (Andersen).
8. The Four Musicians (Grimm).
9. The Discontented Pine Tree.
10. Cinderella.
11. The Coal of Fire, the Bean, and the Straw (Grimm).

THIRD TERM. SPRING

12. The Bird with No Name (Grimm).
13. The Proud Apple Branch (Andersen).
14. The Ugly Duckling (Andersen).
15. The Pea Blossom (Andersen).

(*a*) These stories, as a whole, are simple, lively, and imaginative, and call out a strong, spontaneous activity of the children.

(*b*) They deal with social relations and personal conduct, and also with interesting forms of plant and animal life.

(*c*) The first story appears very fantastic and unreal to many people, but experience shows that it has peculiar attractiveness and interest to children. Its simple repetitions make it easy to grasp and reproduce.

Several of these stories are adapted to particular seasons, as The Anxious Leaf to the fall, The Little Match Girl and The Fir Tree to Christmas, and several others to the springtime.

Other fairy tales and stories quite as good as these may be selected, and the following list of books is given for the benefit of those who wish to select others or to test more varied materials in a wide range of folk-lore.

Quite a full discussion of the value of stories for oral work, of the method of teaching them with classes, and of the selection of suitable lists is given in the "Special Method in Primary Reading."

Books of Materials for Teachers

Grimm's Fairy Tales (Wiltse). Ginn & Co.

German Fairy Tales (Grimm). Maynard, Merrill, & Co.

Grimm's German Household Tales. Houghton, Mifflin, & Co.

Grimm's Fairy Tales. The Macmillan Co.

Classic Stories for the Little Ones. Public School Publishing Co.

Grimm's Fairy Tales. Educational Publishing Co.

Andersen's Fairy Tales, two volumes, Part I and Part II. Ginn & Co.

Danish Fairy Tales (Andersen). The Macmillan Co.

Fairy Tales and Fables. American Book Co.

Fables and Folk Stories (Scudder). Houghton, Mifflin, & Co.

Rhymes and Jingles (Dodge). Scribner's Sons.

Fairy Stories for Children (Baldwin). American Book Co.

Songs and Stories. University Publishing Co.

Fairy Life. University Publishing Co.

Six Nursery Classics (O'Shea). D. C. Heath & Co.

A Book of Nursery Rhymes (Welch). D. C. Heath & Co.

Verse and Prose for Beginners in Reading. Houghton, Mifflin, & Co.

Heart of Oak, No. I. D. C. Heath & Co.

Heart of Oak, No. II. D. C. Heath & Co.

The Eugene Field Book. Scribner's Sons.

Scudder's Fables and Folk Stories. Houghton, Mifflin, & Co.

Æsop's Fables (Stickney). Ginn & Co.

Book of Legends (Scudder). Houghton, Mifflin, & Co.

Stories for Children (Lane). The American Book Co.

A Child's Garden of Verses (Stevenson). Scribner's Sons.

Æsop's Fables. Educational Publishing Co.

The Book of Nature Myths (Holbrook). Houghton, Mifflin, & Co.

What the Moon Saw (Andersen).

Popular Tales (Edgeworth). George Rutledge & Son.

Mother Goose (Denslow). McClure, Phillips, & Co.

Mother Goose. Houghton, Mifflin, & Co.

Boston Collection of Kindergarten Stories. J. L. Hammett & Co.

Trumpet and Drum (Eugene Field). Scribner's Sons.

Treetops and Meadows. The Public School Publishing Co., Bloomington, Ill.

Songs from the Nest (Emily Huntington Miller). Kindergarten Literature Co.

A Book of Nursery Rhymes (Mother Goose). D. C. Heath & Co.

Blue Fairy Book (Lang). Longmans, Green, & Co.

Red Fairy Book (Lang). Longmans, Green, & Co.

Yellow Fairy Book (Lang). Longmans, Green, & Co.

Animal Story Book (Lang). Longmans, Green, & Co.

True Story Book (Lang). Longmans, Green, & Co.

Fairy Tales from the Far North. Armstrong.

In Story Land (Harrison). Sigma Publishing Co.

The Adventures of a Brownie (Craik). Harper Bros.

Kindergarten Stories and Morning Talks (Wiltse). Ginn & Co.

Talks for Kindergarten and Primary Schools (Wiltse). Ginn & Co.

Hall's How to Teach Reading. D. C. Heath & Co.

Place of the Story in Early Education (Wiltse). Ginn & Co.

Methods of Teaching Reading (Branson). D. C. Heath & Co.

Lowell's Books and Libraries. Houghton, Mifflin, & Co.

Books and Reading (Ruskin). In "Sesame and Lilies."

Lectures to Kindergartners (Peabody). D. C. Heath & Co.

The Study of Children and their School Training (Warner). The Macmillan Co.

The Story Hour (Kate Douglas Wiggin). Houghton, Mifflin, & Co.

The Moral Instruction of Children (Felix Adler). D. Appleton & Co. Chapter VI on Fairy Tales.

The Teaching of English (Chubb). The Macmillan Co. Chapters I and IX.

Children's Rights (Kate Douglas Wiggin). Houghton, Mifflin, & Co.

The Story of Patsy (Wiggin). Houghton, Mifflin, & Co.

Literature in Schools (Scudder). Houghton, Mifflin, & Co. Chapter on Nursery Classics.

SECOND GRADE

Robinson Crusoe

FIRST TERM. FALL

Chapters 1–9 in Robinson Crusoe for Boys and Girls.

1. Robinson Crusoe at Home.
2. The Voyage.
3. The Island.
4. Robinson's House.
5. His Work.
6. Surprises. (Wheat found growing in his yard, and a turtle found on the shore.)
7. His Sickness.
8. Exploring the Island. (He finds many grapes, melons, oranges, lemons, and cocoanuts.)
9. Another Trip. (He finds a parrot and takes it home for a pet.)

SECOND TERM. WINTER

Chapters 10–20.

10. Robinson's Garden. (He finds salt also.)
11 and 12. Robinson becomes a Cook.
13. He becomes a Boatmaker.
14. He becomes a Tailor.
15. The Second Canoe.
16. Robinson's Flocks.

17. His Manner of Living.
18. Alarm!
19. Robinson prepares for Trouble.
20. A Discovery.

THIRD TERM. SPRING

Chapters 21–29.

21. Return of the Savages.
22. Making Friday's Acquaintance.
23. Robinson a Teacher.
24. Preparation for a Journey.
25. The Savages' Second Return.
26. A Happy Meeting.
27. Getting Ready for New Guests.
28. An English Vessel Arrives.
29. Home Again.

Besides the Robinson Crusoe, or in the place of it, the Hiawatha legend with selections from Longfellow's poem is often used in second grade. It is made the basis of oral and reproduction work the same as the Robinson Crusoe. It naturally becomes a centre for drawing and constructive exercises, making tents, Indian implements, and dress.

The Story of Ab (Waterloo), published by Way, is used in some schools. Seven Little Sisters is also used in many schools in first and second grades.

A simple edition of the Robinson Crusoe is published by The Public School Publishing Co., Bloom-

ington, Illinois. A complete edition of the original Robinson Crusoe is published by Houghton, Mifflin, & Co. Other editions are as follows: —

Life and Adventures of Robinson Crusoe. American Book Co.

Robinson Crusoe. Lee and Shepard.

Robinson Crusoe for Youngest Readers. Educational Publishing Co.

Robinson Crusoe. University Publishing Co.

Robinson Crusoe. The Macmillan Co.

Defoe's Robinson (Hale). Ginn & Co.

Defoe's Robinson Crusoe. Maynard, Merrill, & Co.

Robinson Crusoe. Large Library Edition with Illustrations. Longmans, Green, & Co.

A number of books have been written by practical teachers on the use of Hiawatha in primary grades: —

The Hiawatha Primer. Houghton, Mifflin, & Co.

Hints on the Study of Hiawatha (Alice M. Krackowitzer). A. Flanagan & Co.

The best edition of the Hiawatha is Longfellow's Song of Hiawatha, well illustrated. Published by Houghton, Mifflin, & Co.

Other editions are The Song of Hiawatha. The Educational Publishing Co.

Longfellow's Hiawatha. The Macmillan Co.

Song of Hiawatha. University Publishing Co.

THIRD GRADE

In this grade a variety of the best world stories may be used for oral lessons, including the Greek Myths and Homeric Stories, the Norse Myths, the Robin Hood Tales and Ballads, and the Bible Stories.

Among the more successful stories for this purpose are those given in Hawthorne's Wonder Book and Tanglewood Tales and in Kingsley's Greek Heroes.

The following stories have been much used: 1. The Miraculous Pitcher. 2. The Paradise for Children. 3. The Three Golden Apples. 4. The Golden Touch. 5. The Pygmies. 6. The Dragon's Teeth. 7. Circe's Palace. 8. The Pomegranate Seed. 9. The Golden Fleece. 10. The Chimæra.

The Story of Siegfried is sometimes used in third grade.

Instead of treating all these stories orally it may be better to give half the time to other stories, as those of Norse Mythology as given in the Heroes of Asgard or in Mabie's Norse Stories; or some of the Old Testament Stories, as of Abraham, Joseph, and David; or a few of the Robin Hood Stories given in Pyle's Some Merry Adventures of Robin Hood.

It should be remembered that many of these stories will probably reappear in the later reading of the

children in fourth and fifth grades, and the chief purpose of the oral work is to introduce the children in a spirited and realistic manner to a few of the best stories in each important group.

The method of oral treatment of these stories is discussed in the "Special Method in Primary Reading," The Macmillan Co.

The following list of books for the use of teachers includes the best materials in these different groups.

BOOKS FOR THIRD YEAR OF SCHOOL

The Wonder Book and Tanglewood Tales of Nathaniel Hawthorne.

One should preserve as much as possible of the spirit and language of the author. Perhaps in classes with children the following stories will be equally attractive: The Paradise of Children and The Three Golden Apples, published by Houghton, Mifflin, & Co., The Macmillan Co.

Kingsley's Greek Heroes.

The Stories of Perseus, the Argonauts, and Theseus, especially adapted to children. It may be advisable for the teacher to abbreviate the stories, leaving out unimportant parts, but giving the best portions in the fullest detail. Published by Ginn & Co., The Macmillan Co.

Story of the Iliad and Story of the Odyssey (Church). Simple and interesting narrative of the Homeric stories. The Macmillan Co.

Adventures of Ulysses (Lamb). A small book from which the chief episodes of Ulysses' career can be obtained. Published by Ginn & Co.

The Story of Siegfried (Baldwin). Published by Scribner's Sons.

Out of the Northland (Baker). Some of the Northern Myths and the Story of Siegfried. The Macmillan Co.

Peabody's Old Greek Folk Stories. Simple and well written. A supplement to the Wonder Book.

Tales of Troy (De Garmo). D. C. Heath & Co. Simple and interesting.

Stories of the Old World (Church). Stories of the Argo, of Thebes, of Troy, of Ulysses, and of Æneas. Published by Ginn & Co.

Gods and Heroes (Francillon). A successful effort to cover the whole field of Greek mythology in the story form. Ginn & Co.

Heroes of Asgard. Stories of Norse mythology; simple and attractive. The Macmillan Co.

The Story of Ulysses (Agnes Spofford Cook). In language easily comprehended by children in the third and fourth grades. Public School Publishing Co., Bloomington, Ill.

Old Norse Stories (Bradish). Stories for reference and sight-reading. American Book Co.

Norse Stories (Mabie). An excellent rendering of the old stories. Dodd, Mead, & Co.

Myths of Northern Lands (Guerber). American Book Co.

The Age of Fable (Bulfinch). Lee and Shepard.

Readings in Folk-lore (Skinner). American Book Co.

National Epics (Rabb). A. C. McClurg & Co.

Classic Myths (Gayley). Ginn & Co.

Bryant's Odyssey. Complete poetic translation. Houghton, Mifflin, & Co.

Bryant's Iliad. Houghton, Mifflin, & Co.

Butcher and Lang's prose translation of the Odyssey. The Macmillan Co.

The Odyssey of Homer (Palmer). Houghton, Mifflin, & Co. A prose translation.

Myths and Myth-makers (Fiske).

Moral Instruction of Children (Felix Adler). Chapter X. D. Appleton & Co.

Special Method in Primary Reading (McMurry). The Macmillan Co.

BOOKS FOR TEACHERS OF BIBLE LITERATURE

The Modern Reader's Bible, twenty-one volumes (Richard Moulton). The Macmillan Co.

Children's Series. Old Testament and New Testament Stories. Two volumes. The Macmillan Co.

Stories from the Bible (Church). The Macmillan Co.

The Story of the Chosen People (Guerber). The American Book Co.

The Literary Study of the Bible (Moulton). D. C. Heath & Co.

READING

FIRST GRADE

THE first term of the first-grade reading (three months) is given chiefly to blackboard exercises in learning to read the simplest sentences. During the latter part of this term the primer may be used and perhaps other very simple books of rhymes, fables, and stories.

FIRST TERM. FALL

(*a*) The stories which the children have learned and reproduced in first grade, together with the nature topics, have often been made the basis of board-script exercises in learning to read. The advantage of using these thought materials in the first reading exercises is that both the words and the thoughts are familiar and interesting to the children, and they enjoy learning to read stories which have attracted their interest. This is the opposite of the formal drill on charts and primers. The subject-matter in these exercises is derived from topics treated in Literature and Nature Study.

(*b*) Reading, from a book, or printed page, of

poems, rhymes, and songs previously learned by the children at home or in school.

(*c*) During this term and the following terms, beginning about the fifth or sixth week of school, the children spend a few minutes each day learning the sounds of letters, these sounds being derived by them from some of the words with which they have become familiar. Through their knowledge of these sounds they are enabled to make out words for themselves, and the second term they do some reading without previous acquaintance with the stories.

During the second and third terms of the first year a standard primer or first reader is read through carefully. In addition to this one or two other first readers should be read more rapidly. Quick sight-reading of very simple stories should be practised.

In the subjoined lists of books for the first three years of school a much larger number of books is given than can be used in any school. Out of this list for each grade two or three standard books should be selected and more carefully read. From the rest of the books others may be selected for sight-reading, and for such additional seat-work as may be needed. Good teachers, where possible, keep several sets of these reading books on hand for use in different ways and as the special needs of the class require.

FIRST GRADE BOOKS

Cyr's Primer. Ginn & Co.

Cyr's First Reader. Ginn & Co.

Riverside Primer and First Reader. Houghton, Mifflin, & Co.

Nature Stories for Young Readers (Plants). D. C. Heath & Co.

Hiawatha Primer. Houghton, Mifflin, & Co.

Stepping Stones to Literature, Book I. Silver, Burdett, & Co.

Child Life Primer. The Macmillan Co.

Taylor's First Reader. Werner School Book Co.

Arnold's Primer. Silver, Burdett, & Co.

The Thought Reader. Ginn & Co.

Sunbonnet Babies. Rand, McNally, & Co.

Graded Classics, No. I. B. F. Johnson Publishing Co.

Nature's By-Ways. Morse Publishing Co.

Graded Literature, No. I. Maynard, Merrill, & Co.

First Reader (Hodskins). Ginn & Co.

Baldwin's Primer (Kirk). American Book Co.

Art Literature Primer and First Reader.

A more extended list of books, including a pedagogical series for teachers, is given in the "Special Method in Primary Reading."

SECOND GRADE

The reading exercises of the second grade include a variety of materials besides the regular second readers, such as the books of fairy tales and fables, some of which have been handled orally in first grade, some nature stories and nature myths, choice collections of short poems and rhymes, and a few very simple classics in verse and prose.

The list of books suggested for second grade shows the variety and richness of this material, and the children should be allowed to try their powers upon many of the simple books.

SECOND GRADE BOOKS

Nature Stories for Young Readers (continued). D. C. Heath & Co.

Easy Steps for Little Feet. American Book Co.

Verse and Prose for Beginners. Houghton, Mifflin, & Co.

Classic Stories for Little Ones. Public School Publishing Co., Bloomington, Ill.

Cyr's Second Reader. Ginn & Co.

Stepping Stones to Literature, Book II. Silver, Burdett, & Co.

Pets and Companions (Stickney). Ginn & Co.

Child Life, Second Book. The Macmillan Co.

Nature Myths and Stories for Little Ones (Cooke). A. Flanagan & Co.

Around the World, Book I. The Morse Co.

Fairy Tale and Fable (Thompson). The Morse Co.

Graded Classics, No. II. B. F. Johnson Publishing Co.

Graded Literature, No. II. Maynard, Merrill, & Co.

A Book of Nursery Rhymes (Welsh). D. C. Heath & Co.

Book of Nature Myths (Holbrook). Houghton, Mifflin, & Co.

Heart of Oak, No. II. D. C. Heath & Co.

German Fairy Tales (Grimm). Maynard, Merrill, & Co.

Fables and Folk-lore (Scudder). Houghton, Mifflin, & Co.

Baldwin's Second Reader. American Book Co.

Choice Literature, Book II (Williams). Butler, Sheldon, & Co.

Fairy Stories and Fables (Baldwin). American Book Co.

Many of these books can be used in both second and third grades.

THIRD GRADE

One of the chief aims of the reading work is to introduce the pupils early to the best literary materials. The readers recommended for third grade contain some classics, and the other books suggested

supply a varied collection of superior stories and choice poems.

It is fortunate that many of these products of lasting value are in a language form simple enough for children of this grade.

The list of books is as follows: —

Robinson Crusoe. Public School Publishing Co.

Golden Book of Choice Reading. American Book Co.

Æsop's Fables (Stickney). Ginn & Co.

Andersen's Fairy Tales, Part I. Ginn & Co.

Seven Little Sisters. Ginn & Co.

Heart of Oak, No. II. D. C. Heath & Co.

Child Life, Third Reader. The Macmillan Co.

Grimm's German Household Tales. Houghton, Mifflin, & Co.

Fables (published as leaflets). C. M. Parker, Taylorville, Ill.

Around the World, Book II. The Morse Co.

Graded Classics, No. III. B. F. Johnson Publishing Co.

Graded Literature, No. III. Maynard, Merrill, & Co.

Grimm's Fairy Tales, Vols. I and II (Wiltse). Ginn & Co.

Nature Myths and Stories for Little Ones (Cooke). A. Flanagan & Co.

Fairy Tales in Prose and Verse (Rolfe). American Book Co.

Arabian Nights. Houghton, Mifflin, & Co.
Hans Andersen's Stories. Houghton, Mifflin, & Co.
Book of Tales. American Book Co.

FOURTH GRADE

At the beginning of fourth grade, children are sufficient masters of the art of reading so that they may begin a course of readings in good English writers, in what are called the English Classics.

This series of readings in the best authors continues throughout all the grades till the High School is reached.

The selections used in fourth grade are complete stories and poems drawn from several sources, as the Greek and Norse myths, choice descriptions of plant and animal life, early history stories, shorter poems and ballads, and such famous narratives as are found in the Arabian Nights, the early Bible stories, and the legends of King Arthur.

In each of the three terms of the year there should be a variety of readings, illustrated by the following: —

Fall Term. Hawthorne's Wonder Book, The Story of Ulysses (Cook), Old Testament Stories in Scripture Language. These three books should be read with care in regular lessons.

For sight-reading without preparation read stories of American Life and Adventure, and Kingsley's Greek Heroes.

For select poems to be read or memorized, use Round the Year in Myth and Song (Holbrook) or Nature in Verse (Lovejoy).

Winter Term. For careful reading take Stories from the Arabian Nights, Norse Stories (Mabie), and The Ways of Wood Folk (Long).

For sight-reading use Fanciful Tales (Stockton) or King Arthur and his Court (Greene).

Poems to be used: Children's Treasury of English Song, or one of the books of poems suggested for the fall term.

Spring Term. For regular reading use the Nürnberg Stove (Bimbi, De la Ramée); Kingsley's Greek Heroes; Waste Not, Want Not; Squirrels and Other Fur-Bearers (Burroughs).

For sight-reading use Heroes of the Middle West (Catherwood), Black Beauty, and Stories of Our Country (Johonnot).

Short poems for reading and memory work. Open Sesame, Vol. I. A Ballad Book.

In addition to the regular reading exercise it is fitting on Friday afternoons or other special occasions that the teacher should read interesting poems and stories to the children. For such purpose use, for example, Old Stories of the East (Baldwin), The Dog of Flanders, Bird World (Stickney-Hoffman), and Whittier's Child Life. During their leisure time at school or at home children may be encouraged to read some of these books for themselves.

In these various ways children in the fourth grade may experience the value of several groups of important literary materials, and may feel a genuine and personal attachment for these favorite stories and authors.

In a few cases the lives of the authors themselves will be attractive to the children if presented by the teacher, as Carroll, Burroughs, Whittier, Stockton, Hawthorne, Kingsley. Short biographies of these authors are often found in the school editions of the classics, as in the Riverside Series, in the Pocket Classics Series, and in others.

In many schools regular readers are used instead of the editions of classics. In this case there should be three or four sets of readers for each class, part for use as regular readers, and part for sight-reading. The following list of books for use in fourth grade is divided into two groups: —

1. Those to be used as regular reading work.

2. Those of a similar character to be used as regular reading or as supplementary thereto.

These two groups include a much larger list than is given on pages 72 and 73 or than can be used in one year, but it allows a choice among excellent materials so as to suit the needs of any class or school.

FOURTH GRADE

I. BOOKS FOR REGULAR READING LESSONS

Hawthorne's Wonder Book. Houghton, Mifflin, & Co. This has been very extensively used in fourth and fifth grades, and even in sixth. A book of standard excellence.

Kingsley's Greek Heroes. Ginn & Co. Much used. Excellent. Covers much the same ground as the Wonder Book and is preferred by some to it.

Stories from the Arabian Nights. Houghton, Mifflin, & Co. Excellent. It contains some of the most familiar stories, as Aladdin, in simple form.

Whittier's Child Life in Poetry and Prose. Houghton, Mifflin, & Co. An excellent selection of poems and stories of child life by Whittier. It has many simple poems and stories, as Barefoot Boy, John Gilpin, etc.

Fanciful Tales (Stockton). Scribner's Sons. Very pleasing and well-told stories for children. It has not been extensively used for reading as yet.

Book of Tales. American Book Co. A good collection of old fairy tales, stories, and poems. It has been extensively used.

Old Testament Stories in Scripture Language. Houghton, Mifflin, & Co. The patriarchal stories in familiar Bible language. It may be a little difficult for the first part of the year.

Round the Year in Myth and Song (Holbrook). American Book Co. A fine collection of nature poems for occasional use throughout the year.

Bird World (Stickney-Hoffman). Ginn & Co. An interesting collection of bird stories and descriptions. Simple. A good book to encourage observation of birds.

Nature in Verse (Lovejoy). Silver, Burdett, & Co. An excellent collection of poems of nature arranged according to the seasons.

Book of Legends (Scudder). Houghton, Mifflin, & Co.

Andersen's Fairy Tales. Ginn & Co.

Hans Andersen's Tales. The Macmillan Co.

Squirrels and Other Fur-Bearers (Burroughs). Houghton, Mifflin, & Co. Very entertaining, but somewhat difficult in language. Use toward the end of the year, and in fifth grade.

Peabody's Old Greek Folk Stories. Houghton, Mifflin, & Co. Simple and well written. It supplements the Wonder Book.

King Arthur and his Court (Greene). Ginn & Co. A recent book. Simple in style and pleasing to children. A good introduction to poems for later study.

2. SUPPLEMENTARY AND REFERENCE BOOKS

Stories of Our Country (Johonnot). Appleton & Co. Good American stories for children to read at home or school.

Tales of Spenser. The Macmillan Co. Stories from the Faerie Queene. For reference.

Bimbi (De la Ramée). Ginn & Co. The Nürnberg Stove and other good stories. Good for home reading and for school work.

The Nürnberg Stove. Maynard, Merrill, & Co.

Gods and Heroes (Francillon). Ginn & Co. Suitable to late fourth and fifth grades for collateral reading. Simple in style.

Waste Not, Want Not (Edgeworth). Ginn & Co. Practical stories for children, illustrating foresight, economy, etc.

A Ballad Book (Bates). Leach, Shewell, & Sanborn. A good collection of the older, simpler ballads. These ballads should be distributed through the year. Good for supplementary reading, also for drill in reading.

The Story of Ulysses (Cook). Public School Publishing Co. A simple rendering, sometimes used as a reader.

Friends and Helpers (Eddy). Ginn & Co. Stories of animals and birds. Instructive.

Tales from the Faerie Queene. The Macmillan Co.

Stories of American Life and Adventure. (Eggleston). American Book Co.

First Book of Birds (Miller). Houghton, Mifflin, & Co. Very simple and interesting descriptions and accounts of common birds. Will help to interest the children in nature.

The Little Lame Prince. Maynard, Merrill, & Co. A story for home reading.

The Dog of Flanders. Maynard, Merrill, & Co. An excellent story for children to read at home or in school.

Old Stories of the East (Baldwin). American Book Co. A pleasing treatment of the old Bible stories, not in Bible language. Well written.

Fairy Tales in Prose and Verse (Rolfe). Harper Bros. A choice collection of stories and poems.

Heroes of Asgard. The Macmillan Co. A good simple treatment of the Norse myths. Suitable for supplementary and sight-reading.

Tales of Troy (De Garmo). Public School Publishing Co. A simple narrative of the Trojan war. Supplementary.

Our Feathered Friends (Grinnell). D. C. Heath & Co. Instructive book on birds.

Alice's Adventures in Wonderland. Very suitable for home and family reading. Younger children enjoy it much. Entertaining.

The Merry Adventures of Robin Hood (Pyle). Scribner's Sons. An expensive book (about three dollars). Excellent stories to read to children. Full of humor and adventure. Finely illustrated. A good book for school and home library.

Open Sesame, Vol. I and Vol. II. Ginn & Co. A fine collection of the best poems of nature, heroism, Christmas time, etc. Ballads and stories.

They are adapted to children in several grades, and should be used for reading, memory work, and for recitation.

Stories of the Old World (Church). Ginn & Co. Good reading matter for fourth and fifth grades. Interesting for supplementary reading in fourth and fifth grades.

Through the Looking Glass (Carroll). The Macmillan Co.

Children's Treasury of English Song. The Macmillan Co. A collection of poems for occasional use.

Little Lord Fauntleroy. Scribner's Sons. A famous story for home reading. A book for libraries.

Heroes of the Middle West (Catherwood). American Book Co. Stories for later fourth and fifth grades. A good book for supplementary reading.

Old Norse Stories (Bradish). American Book Co. Stories for reference reading and sight-reading.

Stories from Plato (Burt). Ginn & Co. Simple myths and stories for home reading.

The Eugene Field Book. Scribner's Sons. Pleasing and entertaining for younger children. Prose and verse, humorous and pathetic.

Stories from Old Germany (Pratt). Educational Publishing Co. A simple, interesting rendering of the Nibelungen Song and the story of Siegfried.

Norse Stories (Mabie). Dodd, Mead, & Co. An excellent rendering of the Norse stories. Simple.

Fifty Famous Stories Retold (Baldwin). American Book Co. Simple and well told.

Pioneers of the Revolution. Public School Publishing Co. A simple narrative of pioneer life and conflict in the Southwest during the Revolution.

Secrets of the Woods (Long). Ginn & Co.

LANGUAGE

THE language lessons of the first four grades are very closely related to the reading, story work, nature study, manual arts, writing, and spelling of the same grades.

The oral work in stories and in nature study is the best possible means of inculcating correct conversational English. At the very earliest available period they help to shape the language of the children into correct and appropriate forms.

But many errors of speech have already crept in from the home and the playground, and the teacher, from the very start, should take up the battle in a quiet, inoffensive, but determined way against bad English.

A few special exercises, as informal as possible, should show the beginnings of this systematic labor in behalf of a correct and pleasing English.

The special language lessons emphasize correct usage in definite channels, but in every study and lesson the teacher must be alert to put in practice the teachings of the language lessons as outlined in the course of study.

No outline, however, should be rigidly followed, but the lessons should be adapted to the needs of a given locality or class of children.

Oral and written exercises are definitely outlined for each grade, and these can be adapted to the special needs of the class.

FIRST GRADE

1. Exercises preliminary to the formal language work.

(*a*) Stories from good literature, presented orally and reproduced by the children; *e.g.* such stories as The Three Bears, The Ugly Duckling, The Discontented Pine Tree.

(*b*) Nature-study observations of plants and flowers, squirrels, butterflies, bumblebees. Work in the garden or excursions to the fields and woods. All these, after they have become familiar in nature study, may be used for short language lessons.

2. Drawing pictures and writing words and short sentences to illustrate stories such as: The Old Woman and the Pig, Cinderella, Hiawatha, The Apple Tree Branch.

3. Descriptions of good pictures by the children. A picture often suggests a story, or a scene in a story. By suggestion the teacher may get good responses. In De Garmo's "Language Lessons," Book I, are many illustrations.

4. Copying of words and very simple sentences chosen by the teacher from the reading or other lessons. Let the children's writing at the board be

large and free. Very simple sentences current in the other lessons may be dictated by the teacher.

5. Exercises in the use of *a* and *an* with nouns: an apple, an orange, an eagle, a tree, a man, etc. (Not much time needed.)

6. Use of common verbs to agree with singular and plural nouns as subjects; as, *is* and *are*, *was* and *were*; *e.g.* The four musicians were singing. Note also the correct use of *there is* and *there are* in sentences; as, There are dangers by the way. In this kind of work very brief exercises are needed, but constant watchfulness to secure correct usage in all lessons. (See chapter of Illustrative Lessons in the "Special Method in Language.")

7. The use of correct forms of personal pronouns as subjects and objects in sentences; *e.g.* Mary and I were playing. Philip and I sat together. Tell John and me the story. No reasons are assigned, but the correct form given and required till use is settled. (See chapter of Illustrative Lessons.)

8. Correct and avoid the use of *ain't*, *have got*, and *had ought*. In correcting, use the proper forms and keep them before the children; *e.g.* The fir tree isn't large. You ought not to go. Ought they not to speak quietly?

9. Teach the proper use and spelling of the following homonyms: —

hear — here	hour — our	know — no
write — right	son — sun	there — their
eye — I	to — too — two	be — bee

Various devices may be used in drilling upon these words. Use cards with the words and call for meanings or sentences. (See chapter of Illustrative Lessons in "Special Method in Language.")

10. *Abbreviations.*

Use Mr., Mrs., Dr., and St. Write on the board short phrases and sentences with these abbreviations; as, Mr. and Mrs. Ball.

11. Use of the period in sentences and abbreviations; also the question mark, the possessive form with apostrophe, and capitals.

Notice frequently the use of these marks in the book and in board work as a preparation for use.

12. *Spelling.*

Have frequent exercises in the written spelling of words occurring in the reading, nature study, and other lessons. Select at first the most common words. For seat work copy such lists.

13. *Writing.*

(*a*) Observation of teacher's written work at the board and frequent exercises in this free-hand board work largely in imitation of the teacher.

(*b*) Copying of words and sentences placed on the board by the teacher.

(*c*) Copying short exercises from the first reader.

(*d*) Copying memorized selections and short passages from memory.

Apply spelling and punctuation to all these written exercises.

While these are called formal language lessons, they should be as informal as may be.

Children should be encouraged to freedom and confidence in speaking and writing. The necessary corrections and drills should be kept within the channels of spontaneous activity. As Mr. O. T. Bright says: "Children in the first grade cannot study. They want something to do." The blackboard and the seat work should be the outlet for this natural impulse.

SECOND GRADE

1. Use of *this* and *that*, *these* and *those;* as, *this* kind of apples, *that* sort of men; *these* kinds of cloth, *those* sorts of people.

Correct and avoid such expressions as, these kind, those sort, them kind, and them boys.

2. *Correct Use of Adverbs.*

Slowly, quickly, well; *e.g.* He is working slowly. John acts quickly. The boys are writing well.

Show the proper use of corresponding adjectives: slow work, good writing, quick action.

Correct such expressions as, He is running slow. Mary wrote good. John speaks rapid.

3. The use of correct forms of pronouns after *is* and *was;* also after verbs and prepositions; *e.g.* It is *I.* The candy is for Mary and *me.* It was *she* that rode past. It was *they* who laughed. It is *we* that are to blame.

Correct such errors as the following: He told John and I to return. It was Mary and me. It was you who was talking.

4. Practise upon the following homonyms: —

meat — meet	aunt — ant	ate — eight
buy — by	flower — flour	grate — great
knew — new	sea — see	sent — cent
steal — steel	tail — tale	

Bring into these exercises any other homonyms that appear in the regular studies of the grade.

Notice the widely different meanings and make simple sentences showing their proper use; as, The grate was broken. Great trouble came to him.

5. Use of *Comparatives* and *Superlatives* in adjectives; as, taller and tallest. I have the larger book (of the two). Edith is the tallest girl in school. Avoid the use of the superlative in comparison of two persons or things.

6. Correct use of

Learn and *teach;* as, Teach me the lesson.

Don't and *doesn't;* as, John doesn't know his lesson.

Off and *of;* as, Clear off the top of the table.

Shall and *will* in simple cases; as, Shall I come? not, Will I come?

Avoid also the wrong use of *can;* as, Can I do it? Can we play with the dolls?

7. *Abbreviations.*

Review those of first grade and add the following: ct., doz., abbreviations of names of days of the week and months of the year. Apply these abbreviations to other studies and add to the list others used in any school work of this grade.

8. *Use of Capital Letters.*

In beginning sentences and in proper names.

The first word in lines of poetry and in direct quotations.

In dates, days of the week, months, and in addresses and titles.

Let each child learn to write his own name and address.

In all the written work of the school apply the correct usage of capitals and abbreviations.

9. Copy carefully memorized verses and proverbs with attention to capitals, punctuation, and spelling.

10. *Use of Quotation Marks.*

Give examples of quotations and their markings, using familiar passages in literature, poems, etc.

Use of the comma in series and in addresses.

Notice in the readers used the different marks of punctuation; as, question mark, period, comma, and quotation marks.

Apply these to written work at board and on paper.

11. Make a study of the following irregular verbs: —

break	broke	broken
begin	began	begun
come	came	come
drink	drank	drunk *or* drunken
do	did	done
sing	sang, sung	sung
eat	ate	eaten
go	went	gone
see	saw	seen
sit	sat	sat
tear	tore	torn
teach	taught	taught
write	wrote	written
speak	spoke	spoken
lie	lay	lain

The above are given as some of the most common and involve many of the more frequent errors.

In practising the correct use of irregular verbs we may aim directly at these errors.

One of the most common faults is in confusing and interchanging the past tense and past participle.

Interesting and lively exercises may be devised for illustrating the uses of such verbs. First ask the question. What did you drink? I drank a glass of water. What have you done with the milk? I have drunk it.

Devise various questions for bringing out the dif-

ferent forms; thus: Use *have* or *had* with the verb *break.* Use the word *break* with *yesterday* or *to-morrow.* (See chapter of Illustrative Lessons in the "Special Method in Language.")

12. *Written Language.*

Parts of the Robinson Crusoe or Hiawatha stories or nature-study lessons furnish good thought material for sentence work at the board.

New and difficult words from any of the lessons may be placed on the board and made the basis of written sentence work.

In written language work there are many devices for reviewing previous lessons.

(*a*) Sentences are asked for containing irregular verbs or pronouns, adjectives and adverbs.

(*b*) Such sentences as the following may be changed throughout to the plural form: The boy that is riding his wheel has lost his way.

(*c*) Sentences with blanks are to be filled out and copied; as, The boy is —— than his sister and —— than his brother.

(*d*) Short stories may be written from memory after a series of sentences containing the story has been placed on the board, examined, and erased.

(*e*) Dictation exercises given by the teacher may test many forms of words, punctuation, spelling, and abbreviations.

In all the work of second grade the sentences used should be short and simple, the exercises brief and

varied. Let the children use the crayon or pencil freely with a large movement.

THIRD GRADE

1. *Irregular Verbs.*

choose	chose	chosen
fly	flew	flown
freeze	froze	frozen
give	gave	given
get	got	gotten *or* got
ride	rode	ridden
rise	rose	risen
ring	rang, rung	rung
steal	stole	stolen
take	took	taken
wear	wore	worn
throw	threw	thrown
burst	burst (bursted)	burst (bursted)
dig	dug (digged)	dug (digged)
sing	sang, sung	sung
stay	staid, stayed	staid, stayed
win	won	won

Make sentences to illustrate the different forms. Use these verbs also with adverbs.

2. Illustrate the use of the apostrophe with the possessive singular and plural; *e.g.* boys' hats. Examine the readers for examples of the use of the apostrophe with possessives.

Dictate written phrases and sentences in the use of the possessive; as, John's knife, Mary's doll, Charles' books.

3. *Abbreviations.*

Capt., Col., P.M., A.M., Rev., P.O., P.S., isn't, hasn't, don't, and other contractions.

Use these abbreviations and contractions in sentences, and apply them to written work.

Review the abbreviations of first and second grade.

4. *Writing Letters.*

Introduce the children to letter-writing to friends.

Direct them to the preparation of letters to be sent by mail. Let them be short, but neat and accurate in punctuation, capitals, etc.

Work out a full letter at the board, selecting topics that interest children.

5. *Short Written Exercises* (on the blackboard) drawn

(*a*) from nature-study lessons and excursions;

(*b*) from home geography descriptions;

(*c*) from stories in literature; as, the Greek and Norse myths.

Apply previous lessons on capitals, punctuation, and spelling.

6. Study the following homonyms: —

rode — road — rowed		pair — pear — pare
sail — sale	pail — pale	weak — week
berry — bury	whole — hole	won — one

hair — hare	bough — bow	forth — fourth
idle — idol	heal — heel	him — hymn

A few of the drills in working with homonyms may be suggested as follows: —

(*a*) Give out the words orally and call for sentences illustrating the different uses.

(*b*) Pronounce the words and call for spelling and explanation of meanings.

(*c*) Write the words upon cards and let the children interpret them at sight.

(*d*) Recall curious mistakes in the use of homonyms.

7. *Short Written Papers.*

First work out with the children a series of simple sentences from a familiar story or nature lesson. Place these sentences on the board and examine the spelling, capitals, and punctuation.

In the first efforts of children such sentences may be copied from the board. Later they may be reproduced in substance from memory.

8. Correct the following common errors in speech: —

(*a*) The relative and interrogative pronouns *who* and *whom;* as, Whom did you meet? instead of, Who did you meet? Whom did you call for? etc.

(*b*) *Each* and *every one*, *either* and *neither*. These words are often wrongly used with a plural verb; as,

Every one of the boys are present. Neither of those flowers are beautiful.

(*c*) Review the use of *may* and *can*, *shall* and *will*.

(*d*) Review the personal pronouns *I* and *me*, *we* and *us*, with verbs.

9. The correct use of predicate adjectives instead of adverbs after seem, appear, smell, taste, and feel; as, The apple tastes good (not well). I feel bad (not badly). The fruit smells sweet (not sweetly).

In correcting all these common errors of speech it is advantageous to keep a list of the correct phrases and sentences on the blackboard before the eyes of the children for a period of time, with occasional drills or references to them for the sake of emphasis.

10. *Spelling.*

Make out lists of new or difficult words for spelling exercises taken from the stories, reading, nature study, and geography.

(*a*) Such lists, placed on the board, may be used for pronunciation and copying till they are familiar.

(*b*) Pronounce such words for oral spelling.

(*c*) Dictate such words singly or in sentences for written work.

11. Write familiar poems from memory. Apply the previous lessons on punctuation. Before writing study the punctuation, capitals, and spelling of such passages in the original.

12. *Simple Contractions.*

I'll, I'm, isn't, aren't, hasn't, can't, you'll, it's, I've, there's, and others.

E.g. I'll go if it isn't too late.

Give many illustrations till the forms are known.

Dictate sentences for writing, involving these forms.

Examine in dialogue and dramatic stories the frequent use of these abbreviated forms.

FOURTH GRADE

1. *Composition.*

Careful work in simple composing can be undertaken in this grade.

(*a*) The outlines previously made out in the oral treatment of history stories and geography topics, manual arts, and nature study supply a good basis for short compositions. Two or three topics of an outline may be worked out in distinct paragraphs with proper attention to margins, indentation, capitals, and punctuation. (See chapter of Illustrative Lessons in the "Special Method in Language.")

(*b*) Greater freedom in outlining and in composing can be allowed in writing descriptions of personal experiences of children upon excursions and picnics.

After looking over such papers the teacher should use the blackboard freely in revising errors of sentence construction, choice of words, paragraphing, spelling, and markings.

For further suggestions of method see chapter of Illustrative Lessons.

2. (*a*) The correct uses of *who*, *which*, and *that* as relative pronouns.

E.g. The lady whom we met is sick. The boy that (or who) was here is very bright. The sheep that (or which) was in the pasture is lost.

(*b*) The proper use of *in* and *into* in sentences: *e.g.* Tom fell into the pond. The boat was in the water.

(*c*) Illustrate the use of the possessive singular and plural of nouns; as, The dog's ears, Charles' hat.

3. *Homonyms.*

ball — bawl	choir — quire	gait — gate
hall — haul	peace — piece	seen — scene
false — faults	flea — flee	heard — herd
oar — o'er — ore	waist — waste	

Study the meanings of these words and illustrate their use in sentences.

Give a series of lessons in the spelling and meanings of homonyms, including those studied in the earlier grades.

4. Develop from numerous examples the chief rules for forming the plurals of nouns.

(*a*) Cases in which *s* is added; as, horse — horses; cat — cats; bonnet — bonnets.

(*b*) Adding *es*; as, box — boxes; grass — grasses; church — churches.

(*c*) Changing *f* to *v* and adding *es*; as, leaf — leaves; half — halves.

As a basis for deriving these rules make long lists of illustrations of each group from familiar words.

In applying the rules, (*a*) dictate words and call for both forms; (*b*) change all the words in a given sentence or paragraph to the corresponding singular or plural.

5. Abbreviations as follows: etc., sec., min., hr., in., ft., qt., pt., gal., bbl., U.S., D.C., R.R., Dr., Amt.

Add to this list the abbreviations that spring up in any of the studies and a review of those in previous grades.

6. Avoid the following incorrect usages, *like* for *as; e.g.* He plays as Henry does. *Without* for *unless; e.g.* Do not go unless your father permits (not, without your father permits). *Good ways* or *long ways* for *long way; e.g.* George is a long way from home (not, long ways). *Some* for *somewhat; e.g.* He is somewhat deaf (not, some deaf).

7. *Irregular Verbs.*

see	saw	seen
come	came	come
do	did	done
go	went	gone
take	took	taken
sit	sat	sat
set	set	set
lay	laid	laid
shake	shook	shaken

Review the uses of *there is* and *there are*, *there was* and *there were*.

8. *Punctuation.*

Observe the use of various punctuation marks in the readers, arithmetics, and other books.

Notice the uses of the exclamation point, quotation marks, the comma in series, addresses, and in setting off clauses and phrases.

Apply these punctuation marks in written work.

9. *Contractions.*

O'clock, 'tis, it's, I've, ne'er, he's, shouldn't, couldn't, shan't, won't, wouldn't, can't, what's, that's.

10. Introduction to the use of the *Dictionary.*

Mastery of the alphabet in order.

How to trace up words in the dictionary.

The markings of vowels, diphthongs, and consonants in the dictionary.

Syllabification and accent.

The interpretation of definitions to fit the context.

Systematic lessons are needed

(*a*) in the correct pronunciation of vowel sounds.

(*b*) on the diacritical markings in the dictionary.

(*c*) upon well-selected words for dictionary study.

See chapter of Illustrative Lessons.

11. *Synonyms* and *antonyms*; *e.g.* large — big — great; little — small — diminutive; angry — vexed — indignant; liberty — slavery *or* bondage; proud — humble; strong — weak.

Frame sentences showing these similar and contrasted meanings.

12. Correction of common errors heard outside of the school; *e.g. ain't, seen* for *saw, done* for *did, you was* for *you were, she don't* for *she doesn't, as lives* for *as lief.*

Keep the correct forms before the eyes and in the hearing of pupils as much as possible.

13. *Spelling* of new and difficult words gathered from the lessons in history, geography, reading, nature study, and arithmetic.

Use the lists of words derived from these studies for dictionary work and for spelling.

14. Make a free but informal use of the terms *verb, noun,* and names of other parts of speech in etymology; also *subject, predicate,* and *modifier* without formal definition, as occasion naturally arises in all studies.

MEMORY SELECTIONS

In all times and countries it has been deemed wise to store in the minds of the children many of the short poems, ballads, proverbs, and choice extracts of the world's best thought. There are good reasons for continuing this old-time habit of memorizing select passages and perhaps for pursuing this plan in a more systematic way through all the grades.

In the first place, the thoughts which are thus committed to the minds of children are beautiful and valuable, a rich treasure of enduring worth.

Again, the children thoroughly enjoy the memorizing and reciting of such pieces, and they greatly need guidance in the selection, for, when left to themselves, they usually choose poor and trashy products.

By an examination of the list of books which follows, it will be seen that they contain an abundance of the most suitable selections for all the grades.

In the natural order of the school programme there are regular occasions where such memory work is provided for, as in the opening exercises, special day programmes, Friday afternoon exercises, and on anniversaries and closing days. There are some quotations suitable for whole schools in concert recital, others for classes or individuals. A Whittier or a

Longfellow day has often been made a delightful occasion for poems, stories, and biographical reminiscence.

In harmony with the plan of teaching good literature in schools, only the best things should be memorized. Much memory work should be encouraged in the regular reading lessons, as well as on these special occasions for memory selections and recital.

There is a wide scope to these materials, as they may range freely over the whole field of studies and of life. The choicest lyric poems from literature, patriotic songs, poems, and selections; humorous anecdotes, stories, and jokes; Mother Goose Rhymes; famous old fables, myths, and historical ballads; nature poems and descriptions according to the seasons; child life, at home and in play, as given by Eugene Field and Stevenson; proverbs and wise sayings from the Bible, from Franklin's Poor Richard, from Bacon's essays; hymns and songs for school use; poems of family life and experience; poems and stories of places and events (geography and history). It is easy to see that such varied selections may have a vital relation to nearly all the regular studies and events in school, and they tend to strengthen and unite the ideas derived from the other studies and school activities.

The following list of books recommended to the use of teachers is divided into two groups for primary and intermediate grades. They are inexpensive books,

ranging in price in most cases from fifteen to seventy-five cents. Two or three of these books from each group would serve well for any school. There are a few books of special value to the teacher, as: —

American Authors and their Birthdays (Roe), containing programmes and suggestions for the celebration of the birthdays of authors. Houghton, Mifflin, & Co.

A Graded List of Poems and Stories (Gilbert and Harris). Silver, Burdett, & Co. This little book of forty pages contains a complete and well-selected list of choice poems and stories for each of the eight grades. They are designed partly for memory work and partly for oral narrative by the teacher. The poems and stories themselves are not given, but the authors and books are directly referred to in which the selections can be found. It will be very helpful to all teachers.

BOOKS FOR PRIMARY GRADES

A Book of Nursery Rhymes (Mother Goose). D. C. Heath & Co.

Verse and Prose for Beginners in Reading. Houghton, Mifflin, & Co.

Mother Goose (Denslow). McClure, Phillips, & Co.

Trumpet and Drum (Eugene Field). Scribner's Sons.

A Child's Garden of Verses (R. L. Stevenson). Scribner's Sons.

Treetops and Meadows (McMurry and Cook). The Public School Publishing Co., Bloomington, Ill.

Songs from the Nest (Miller). Kindergarten Literature Co.

Fables and Rhymes for Beginners. Ginn & Co.

Heart of Oak, No. I. D. C. Heath & Co.

Little Folk Lyrics (Frank Dempster Sherman). Houghton, Mifflin, & Co. Nature and Child Poems.

Open Sesame, Vol. I. Ginn & Co.

Round the Year in Myth and Song (Holbrook). American Book Co. A superior collection of nature poems for use throughout the year.

Love Songs of Childhood (Field). Scribner's Sons.

The Eugene Field Book. Scribner's Sons. Pleasing and entertaining for younger children.

The Listening Child (Thacher). The Macmillan Co. Stories of English verse for youngest readers and hearers.

The Children's Garland from the Best Poets (Patmore). The Macmillan Co. Used also in intermediate grades.

BOOKS FOR INTERMEDIATE GRADES

The Children's Garland from the Best Poets (Coventry Patmore). The Macmillan Co.

Golden Treasury of Songs and Lyrics (Palgrave). First series. The Macmillan Co.

Open Sesame, Parts I and II. Ginn & Co. Short selections in both prose and verse.

Nature in Verse (Lovejoy). Silver, Burdett, & Co. Designed as a nature poetry reader for the lower grades.

Selections from Whittier's Child Life in Poetry and Prose. Houghton, Mifflin, & Co.

A Ballad Book (Bates). Sibley and Ducker. Ballads from Scotch and English folk-lore and history.

Heroic Ballads (Montgomery). Ginn & Co. Scotch, English, and American ballads.

A Book of Famous Verse (Repplier). Houghton, Mifflin, & Co. A very choice collection.

Poetry for Children (Eliot). Houghton, Mifflin, & Co. A good collection for children.

Nature Pictures by American Poets (Marble). The Macmillan Co.

The School Poetry Book (J. H. Penniman). Philadelphia.

Choice English Lyrics (Baldwin). Silver, Burdett, & Co. A great variety of poems, ballads, lyrics, and sonnets.

BOOKS FOR TEACHERS

A Graded List of Poems and Stories (Gilbert and Harris). A list carefully selected and arranged for each of the eight grades.

American Authors and Their Birthdays (Roe). Houghton, Mifflin, & Co. Programmes and suggestions.

A New Library of Poetry and Song (William Cullen Bryant). Fords, Howard, and Hulbert. New York. A very large volume.

History of American Literature (Higginson and Boynton). Houghton, Mifflin, & Co. An interesting book for readers.

Children's Stories of American Literature (Wright). Two small volumes. Scribner's Sons. Short Biographies of American Writers.

A Short History of England's Literature (Tappan). Houghton, Mifflin, & Co.

HISTORY

THE following "Course of Study in History" is designed for classes from the third through the eighth grade of the common school. If this course seems too elaborate for some schools, and needs to be improved by the omission of some topics, it may still serve as a substantial basis for the course as a whole.

There are a number of problems to be solved in working out such a course of study.

After the aim has been fixed and the general theory for the best selection of materials established, we must decide the relative importance of American and European history in the common school; the relation of the history to the reading lessons, literature, and geography in the corresponding grades; and finally the basis for the selection of leading topics for each year.

This chapter will outline the course, not only in history, but also in the related historical and classical readings, and in geography, so as to show in a simple form the interrelations of history, reading, and geography.

In this course of study American history is made the chief basis and backbone of history instruction

for each grade from the fourth year on. The reasons for this, previously discussed, are briefly summarized as follows: —

1. American history, beginning with the simplest conditions of early exploration and settlement, advances by regular steps in a process of growth to our present complex conditions of political and social and industrial life. In a relatively short period most of the important stages of national growth are well illustrated in our own history.

2. The chief epochs and crises of our history are extremely instructive and interesting to children.

3. The excellent biographies of the leading characters of American history are of a superior quality, and have great educational value for children and youth.

4. The best parts of European history of educative value for children can be placed side by side with the corresponding and appropriate parts of American history.

5. A general chronological outline of the world's history is out of the question for the common school.

A wholly wrong viewpoint for judging the course in history in the common school is furnished by a world-chronology and by the course of study in the classical gymnasium, which is often cited.

6. History in our common school should begin with America and end with America, with such incorporation of European history as will give the

necessary breadth and variety of culture. The parallel reading lessons based on European classics and history stories will supplement the history studies with those best parts of European culture which children are capable of appropriating.

7. Our present course of study and the whole tendency of American schools show that American history must be the chief staple of our history course. On the other hand, the increasing use of European classics and historical tales in our schools shows our appreciation for the best elements of European culture. There is not the slightest disposition in this course to limit our history to a narrow Americanism.

EUROPEAN HISTORY. ITS PLACE IN THE COMMON SCHOOL, AND ITS RELATION TO AMERICAN HISTORY

1. The fairy tales, folk-lore, and mythologies of European countries are, in this course, not regarded as a part of the history proper, but as belonging rather to the oral work in literature of the first three years of school. These stories and myths constitute a very important part of the educative materials of primary grades, and are indispensable both in themselves and as a preliminary to history. They are sufficiently important to be regarded as a distinct body of educative material. Their separate and growing importance in primary grades is shown in many ways.

2. A few important topics of European history are selected for full treatment in each grade from the fourth year on. They may precede or follow the American stories in the same grade. They are not mere supplements to American history, but important culture products for separate treatment.

3. The selection of these topics is based, not upon chronology, but upon the quality of the story, its spirit and setting, and its fitness to educate children of the given age. European history offers the widest choice from the simple to the complex, from the worthless to the most valuable, from savagery and barbarism to the highest culture state reached by Athens, Paris, or London. It is an incomparable error to dump all this into a child's mind in chronological order in the grades.

4. Many biographies and events in European history have a close kinship with similar topics in American history. These should be brought side by side in the same grade. If they breathe the same spirit, teach the same lesson under different conditions, they will double its educative effect. It is well to compare Columbus's explorations to the west with those of De Gama to the east. Champlain, La Salle, and George Rogers Clark were men of the same heroic temper and endurance as David and Coriolanus and King Alfred.

5. The real educative influence of European history can be secured to children by such a careful

selection of those episodes best adapted to their interest and understanding and to their social needs.

6. American topics should be traced back to their sources in European history and European topics followed to their results in America. The books and maps by which this can be done are now much more available than formerly.

SELECTION OF A FEW LEADING TOPICS

In the course here offered a very few prominent standard topics of American history are selected for each grade. This plan excludes the heaping up of miscellaneous facts for memory work as well as the tedious chronological series for the early years.

1. Each one of these topics should fit the age, understanding, and interest of children. Often the activities, games, drawings, and constructions incident to such history stories are the natural reactions of the children upon the material and show an important phase of its pedagogical fitness.

2. Each topic should contain a vital core which gives it a real educative significance. It should plant in a child's mind a living germ capable of strong and beneficent growth.

3. Such a topic may be a biography, an event, a campaign, an invention, or the growth of an idea.

4. Each one of these topics should be worked out as a complete unit of thought, interesting in itself

and in the associated facts, and provoking inquiry by a close succession of connected facts, giving a rational sense and movement.

5. Biographical stories furnish a large number of such topics and constitute, especially in the early years of history study, the choicest and most educative historical material.

6. American history is probably the richest in choice biographical stories of that of any country in the world, and, as much of this material comes from the earlier simple stages of our pioneer life, it is especially appropriate to children.

7. Such biographical and other topics are, of course, leading types and become centres for the organization of historical material. They simplify history by focussing it in a few leading characters, events, or ideas. Such important central topics also form an excellent basis for comparison and review, biography being compared with biography, event with event, etc., the children being led constantly to look backward over their previous studies for comparisons.

THE REËNFORCEMENT OF HISTORY THROUGH CHOICE READINGS FROM AMERICAN AND EUROPEAN LITERATURE

Great is the value of American and European literature as a reënforcement to the history instruction.

In the regular reading work of the schools, from the third grade upward, there is a large amount and variety of classic reading matter which is now used in the schools — poems, biographies, ballads, narrative history, novel, essay, and epic story, such as Marmion, The Courtship of Miles Standish, Horatius at the Bridge, Paul Revere's Ride, Scott's Tales of a Grandfather, Ivanhoe, Hawthorne's Grandfather's Chair, etc. In order to show the value of this literary material used in reading lessons as a supplement to history, a list of the parallel classic reading now available, and much of it now in common use, is shown in each grade: (1) the American selections, and (2) the European selections.

In judging the importance of this connection between history and reading the following considerations should be kept in mind: —

1. Much of the best literature of America and Europe is historical in character and content, and, so far as it enters into the reading course, should be brought into the closest relation to the corresponding history topics. No forced correlation should be sought, but what is natural and rational.

2. In selecting the best literary products, suited for reading lessons, without any thought of teaching history, we have been wont to choose many poems and stories which give a remarkably full and clear description of great historical events and persons.

3. Often a masterpiece of literature is, for children, a most suggestive treatment of a topic in history; *e.g.* Southey's Battle of Blenheim, Holmes's Grandmother's Story of Bunker Hill, Plutarch's Alexander the Great, Shakespeare's Julius Cæsar, etc.

4. The course of study should take advantage of this very intimate relation between history and reading lessons, and thus cause the reading lessons to contribute greatly to the force and completeness of history study. History seldom takes the time for such an intense and realistic treatment of a history topic as is given, for example, in Marmion of the battle of Flodden Field and its attendant events. Literature has thus a way of deepening and ingraining the lessons of history, which is beyond anything which history itself can do.

5. A careful examination of this course of history as related to the reading will show that the history and reading lessons, to a considerable degree, are laid out on parallel lines. The simple reason for this is the fact that an event or story in history which thoroughly interests a child will interest him still more if put in a simple literary form which he can understand; *e.g.* Paul Revere's Ride, Barbara Frietchie, The Battle of Ivry, etc. In the nature of the case, when the history and reading touch the same or kindred topics, they should walk close together.

6. Besides the English classics of a historical

character used in regular reading lessons; the supplementary books in literature and history read by children at home or in the school library may still further broaden and deepen their historical knowledge. Fully half of the historical readings indicated in this course of study are of this supplementary character. Most children have plenty of time at home for this kind of reading, and the school should give it a wise direction and stimulus. The appended lists show how excellent and abundant are the books adapted to each grade of school.

7. In most cases the masterpieces of literature of a historical character are handled in reading lessons a year or two later than the corresponding history topics in history. Several reasons may be assigned for this: (*a*) The difficulty of the language and literary form; *e.g.* Lady of the Lake, Evangeline, Webster's Speech on Bunker Hill, Plutarch's Lives, Franklin's Autobiography, and others. (*b*) The artistic quality in a fine piece of literature does not at first appeal to a child. (*c*) A masterpiece of literature has often a greater depth and maturity of thought regarding a historical event and requires a more advanced age in the pupil. (*d*) The poem or drama often needs the foregoing history as a basis for its understanding. Such a poem is often a splendid retrospect and vital summing up of earlier historical studies; *e.g.* Lowell's Under the Old Elm, Webster's orations. It serves the student as a noble

review of earlier studies, and draws lessons not seen at first.

On the other hand, many of the best poems and stories are so simple and graphic that they can be used as reading lessons in the same grade in which the corresponding history topics are treated; *e.g.* Courtship of Miles Standish, Paul Revere's Ride, Grandmother's Story of Bunker Hill, Hawthorne's Grandfather's Chair, and others.

THIRD GRADE

HISTORY

Christmas celebration: The Christmas story, with Christmas tree, pictures, etc. This is customary with all the primary grades. The story is narrated to younger children. Poems of Christmas time for recitation and song. These exercises do not partake so much of the character of instruction as of entertainment and joyful festivity.

Thanksgiving celebration: History of early Thanksgiving days. Poems and stories. By means of pictures and stories something of early New England life is given.

Washington celebration: Stories of Washington. A full treatment of the early life of Washington is not expected, but an acquaintance with the more interesting stories and surroundings of his childhood. Other national characters treated in a similar way.

Local history of the town or neighborhood: The early settlers of the town and neighborhood. Stories of the most prominent pioneers; where they came from. Early log-houses. Hardships. First school-houses. Early roads and modes of travel. Family history. Grandfather stories.

The family and neighborhood traditions are the best beginnings of history, and an interest in them should be regularly cultivated both in the home and school. The grandfather stories give first notions of chronology.

Indian life and relics: Stories of Indian life and adventure in the early settlement of the neighborhood and of the region of country adjacent.

Different nationalities in the community and where they came from.

The geography of the third grade is expected to deal with the hills, streams, valleys, products, and occupations of the village and adjacent country. Simple and primitive forms of industry are worked out.

In literature the Greek and other myths are handled orally by the teacher and told again by the children.

FOURTH GRADE

HISTORY

Discoveries and Explorers

Pioneers of the home state and neighboring states. The movement is gradually from home outward. For example, New York State, as the home and starting-point, may begin with the following stories: —

Henry Hudson: Trip up the Hudson. Other voyages. Meeting with the Indians. A map of the world is needed and a good board sketch of the Hudson, locating the places of special interest on the trip of the *Half Moon.*

The earliest Dutch settlers: Trading with the Indians. The customs, buildings, and dress of the Dutch. Give some account of their previous home in Holland. A map and pictures are needed. Drawings may be made by the children. Constructions also of forts, palisades, Dutch houses, ovens, and windmills are to be encouraged. The activities of children in such efforts are easily set going, if materials are furnished.

Champlain: Explorations. Expeditions against the Iroquois. First settlements along the St. Lawrence. First battle with the Indians on the shore of Lake Champlain. Locate France on the map, and trace the journey across the Atlantic.

The Five Nations: Their homes and customs.

Warlike character and expeditions. The map of central New York should be drawn and the warlike raids of these tribes into the neighboring regions indicated.

La Salle: In Canada. At Niagara. On the Great Lakes. In Illinois and on the Lower Mississippi. His hardships, dangers, and resolution. Tonty and Hennepin in relation to La Salle. Miles Standish at Plymouth. The trials of the first few years.

In laying out the fourth-year work for Massachusetts schools the story of the first settlement of Plymouth and Boston would naturally come first, followed by other pioneer stories of New England, and the arrangement of the other stories of Hudson, etc., would be somewhat modified. In planning the course for Illinois schools, the stories of La Salle, Lincoln, and others of the Mississippi Valley, would occupy the first place, while the pioneer stories of more distant states would follow later.

Some schools may prefer to omit some of these stories or to substitute others in their place.

Raleigh: Early life. His attempts at founding colonies.

John Smith: Explorations. Experiences at Jamestown.

Boone: Life in Kentucky.

Washington: Early life up to Braddock's defeat.

Lincoln: Early life to the age of twenty.

The American Pioneer History Stories, in three volumes, contain most of the above stories and others for use in the fourth and fifth grades.

OTHER NATIONAL STORIES

Abraham: The chief scenes of his life.

Joseph: All the parts suitable for children.

David: His early life to the death of Saul.

These stories are well given in Bible Stories in Scripture Language. Use the map freely. Consult chapter on List of Books.

Romulus: Founding of Rome.

Coriolanus: In the main according to Plutarch.

Cincinnatus: A short story from Plutarch.

The Roman stories are well given in several of the supplementary story-books named in the lists.

Julius Cæsar: Conquests in Gaul and England.

The Angles and Saxons: Their invasion of England.

King Alfred: His war with the Danes and later labors for his people.

All the above stories, both American and others, are designed for oral treatment.

The English stories are given in the Story of the English, and in several other historical readers. It is better to give a few of these stories in full and interesting detail, with pictures, maps, and involving constructive efforts by the children, than to multiply short, scrappy stories.

LITERATURE AND READING OF FOURTH GRADE. THE FOLLOWING BOOKS ARE MUCH USED IN THE REGULAR READING LESSONS

Wonder Book and Tanglewood Tales (Hawthorne); Old Greek Folk Stories (Peabody); Greek Heroes (Kingsley). These books are excellent for regular school reading. Story of Ulysses and Tales of Troy, both prose and poetic translations and narrative stories. There are many renderings of the Greek myths and stories suited to school use. Book of Legends (Scudder).

Complete translations of the Iliad and Odyssey, by Bryant, Palmer, and others, are now available for teachers and pupils for school and home use.

Heroes of Asgard; Norse Stories (Mabie); Stories from the Old German (Pratt); Old Norse Stories (Bradish); Siegfried (Burt). These stories of Norse and German myths have been used for regular reading exercises, or they may serve as supplementary reading matter in school and home.

OTHER HISTORICAL AND LEGENDARY STORIES

Used in regular, supplementary, and home reading: Old Testament Stories in Scripture Language — the essential parts of the Bible stories for school use; Old Stories of the East (Baldwin) — a free rendering of the old Bible stories; Boy's King Arthur (Lanier);

King Arthur and His Court (Frost); Stories of King Arthur's Round Table Knights; Tales of Spenser, stories of the Faerie Queene; Ballad Book. There are several good ballad books giving the old English, Scotch, and other European ballads. They are important products of the old folk-lore tradition and early history.

All the above stories and other books of similar character may be used partly for regular reading exercises, but especially for supplementary reading, for special occasions when the teacher reads to the whole school, and for home use at the fireside.

HISTORY. SUPPLEMENTARY READINGS

American Life and Adventure (Eggleston); Stories of our Country (Johonnot). These books furnish simple narratives of interesting scenes of American life. Four Great Americans; Pioneers of the Revolution, stories of Boone, Robertson, and others; some of the American Pioneer History Stories. Most of these American History Stories are simple enough to be read by the children.

MISCELLANEOUS

Fifty Famous Stories Retold; Open Sesame, Vols. I and II — a collection of poems, ballads, etc.; The Arabian Nights — most famous of old stories; Stories of the Old World (Church); The Nürnberg Stove

and other stories; Child Life in Prose and Verse (Whittier).

It is well for the children in the fourth grade to begin to read for themselves the simpler stories of America, and also kindred stories of adventure and heroism from other countries, especially from European countries. The oral treatment of stories in this grade is the best possible introduction to the proper spirited appreciation of such narratives.

GEOGRAPHY

THE geography of the fourth grade runs parallel with the history. The Pioneer History Stories require a clear grasp of the natural or physical geography of North America and the power of interpreting maps.

The geography of this year should contain a good description of the interesting and striking physical and industrial features of North America, its chief mountains, forests, rivers, occupations, and zones of climate. Parallel with these geographical topics each pioneer story necessitates a special map to make clear the geographical conditions of the story.

Many of the topics of home geography treated in fourth grade trace out the origin of important products to various parts of North America and of the world, as tropical fruits, tea and coffee, cotton and silk goods, fine china and porcelain, etc.

The advantage of this close parallelism of history and geography is found in the very great interest which good stories lend to localities, and in the mutual help which these studies render to each other in explaining and fixing better the facts of both geography and history. Each study reviews, reënforces, and intensifies the facts taught by the other.

The value of each study in its relation to life is also better seen.

THIRD GRADE — HOME GEOGRAPHY

SIMPLE, PRIMARY TYPES

1. Building materials.

Excursion to a house in process of construction.

Outline. Foundation and floor plan. Draw plan. Work of excavation. Brick and stone masons. Basement windows, doors. Drainage, etc. The framework of the house; beams, joists, studding, rafters, siding, partitions. Plan of rooms. Heating, plumbing, gas-pipes, or wires for lighting. Water-supply. Connection with sewer. Door and window frames. Stairs. Floors. Plastering. Making of plaster; lime, sand, hair. Interior finish. Oak and hard woods. Varnishing. Chimneys, fireplaces. Plan of heating. Tinning, spouting, roofing. Painting, interior and exterior. Ingredients of paints. Tinting, decorating, papering, frescoing. Yard and lawn; walks, trees.

Several excursions at different times in the process of constructing and completing a house are made. The observations made upon these trips are later fully discussed in the class room.

The different kinds of trades and tools employed in the building are noticed, such as those of masons, carpenters, plumbers, painters, tinners, architect, plas-

terers, and decorators. The shops, quarries, and mills from which building materials are obtained, should be mentioned and located; *e.g.* the carpenter shop, planing-mill, tin-shop, the stone quarry, the brick yard and kiln. The close dependence of all the different trades upon one another may be observed. The cost of materials and wages of men may be discussed to some extent. Frequent drawings on the blackboard to illustrate points discussed are helpful.

2. Excursions to a garden and farm.

Visits to a near garden in springtime to note the turning of the soil, planting, and growth of vegetables, such as corn, onions, lettuce, radishes, asparagus, potatoes, beets, tomatoes, cabbage, celery, etc. Two or three of these should be followed through the season. A school garden is the best means of following up this work, and gives the children a chance to participate. The use of the hotbed for obtaining early cabbages and tomatoes is worth studying. The treatment and fertilizing of soils may be observed.

In the fall, excursions to the garden to see the crops and their gathering in are instructive; *e.g.* digging potatoes and root crops, the picking and marketing of tomatoes, cabbages, and celery. The berries and small fruits are equally interesting.

A visit to a nursery for fruit and shade trees, both in spring and fall, is very interesting, and in winter the budding and grafting may be observed. A visit

to a typical farm to see the different fields of grain, pasture, and woodland, the kinds and care of stock, the barns and granaries, the machines and tools employed, will be very instructive. In this connection a visit to an agricultural implement store is also helpful.

Upon all these outdoor excursions there is opportunity for incidental observation of the open country, fields, woods, streams, hills, soils, roads, bridges, and various occupations and industries.

3. Clothing and industries related to clothing.

Sheep-raising and wool. Cattle and hides. Tanning of skins. The spinning and weaving of cloth. Visit to a carpet-weaver's. Note machinery used. Cotton or woollen mill. The tailor shop. The dressmaker's. The milliner's. The clothing store. The dry-goods store. Variety of goods sold, as cotton cloth, linen, silk, lace, woollens, and straw. Shoe factory. (Excursion reserved for fourth grade.)

In the third grade a study of raw materials of clothing and their production and treatment as illustrated in the home district and in carpet-weaving are in place. The more complex processes of manufacture are too difficult.

4. Excursions to shops and stores.

Visit to a fruit store. Kinds of fruit, etc. The bakery and the baking oven. The blacksmith's shop and the wagon-maker's shop. The grist-mill. Mill-pond and mill-race. The wheel. The elevator and the loading and storage of grain. The grocery store.

Variety of products. Visit to the park or to the woods. These excursions are carefully planned and later fully discussed in the class.

5. Incidental extension of the above topics into other states and to foreign lands.

From the lumber-yard we pass to the northern pineries, also to the yellow-pine woods of the southern states. Oak and other hard woods are from the Ohio Valley. From the fruit store we may trace the orange to Florida and California, peaches to Michigan and New Jersey, apples to New York, Missouri, etc., grapes to California and New York, bananas to Jamaica. Codfish are referred to the fishing-banks, oysters to the Chesapeake and Long Island Sound, salmon to the Columbia River.

The flour in the grocery store may be traced to Minneapolis and the wheat-fields of the Northwest. Salt comes from New York and Michigan, sugar from Louisiana, Hawaii, and Cuba. Meats are from the corn regions of the Middle West, from Kansas City, Chicago, etc. Fine building-stone is obtained from Indiana, Tennessee, Vermont, Massachusetts, etc. Coffee may be traced to Brazil, tea to China and Japan, fine chinas to France and Germany.

Gold and silver are referred to the mines of Colorado and California, hard coal to Pennsylvania, coal-oil to Pennsylvania, Texas, and California. In locating the sources from which these products come it is hardly advisable to enter into any full treatment of

the modes of production. This full descriptive treatment will be given in the following years. The location of such regions is easily and quickly made upon large wall maps or by blackboard sketches. It is merely incidental to the treatment of home topics.

6. Local map-making.

Beginning with the schoolhouse and grounds, make a simple map of the town and neighborhood with two or three streets and a few roads leading into the country. The creek or river is included and the railroads to neighboring towns. Use sand maps also to express surface irregularities, and let the points of the compass be taught incidentally. After a little practice the maps can be drawn to a scale.

7. Primitive peoples and occupations.

America supplies three good types of primitive life, — the Eskimo of the North, their houses, hunting, and modes of life; the Indians as described by Parkman, Starr, and other travellers; and the Zuñi Indians of the Southwest and of Mexico.

The Seven Little Sisters and Each and All furnish simple descriptions of life in the chief regions of the world for third-grade children who are getting their first notions of distant peoples and countries. They can be read by the teacher, discussed, and as far as possible illustrated by pictures, cardboard, and other constructions.

8. Study of the world-whole.

The largest globes available should be used.

Children enjoy thinking of the earth as a large globe, and finding the continents and oceans. The location of all the chief countries with reference to North America and the home, and the familiarity with the cardinal directions, may be accomplished in a few lively oral lessons.

9. Related topics in history.

Local history, grandfather stories, family histories, leading men and families. The early pioneers and settlers. Their houses. Regions from which they came and modes of travel at that time. Early roads. Indian stories and traditions of the surrounding country. Improvements, such as roads, bridges, schoolhouses, railroads, etc. Historical relics, public buildings, monuments, museums. Places of historic interest. Historical celebrations, Decoration Day, Thanksgiving, etc.

10. Closely related science topics.

Garden vegetables, grasses, and grains. Hothouse plants, forest trees. Fruit trees, budding and grafting. Tree-planting. The changes of the seasons. Plant and animal life in ponds and creeks. Various soils, sands, rocks, and their uses. Quarries and stratified rock. The water-supply, and pure water, wells, springs. Domestic animals and their uses.

11. The Manual Arts supplies a number of closely related topics in primitive industries and present occupations.

FOURTH GRADE

HOME GEOGRAPHY (*continued*)

1. Local physiography.

Excursions for the examination of landscapes, hills, valleys, streams, and tributaries. Water action upon soils, rocks, and valleys. Soils upon uplands and lowlands and effects upon vegetation. Rich bottom-lands. Modes of fertilizing fields, rotation of crops. Rock strata along streams and valley slopes. Deposits of sand gravel and glacial drift. Note the influence of valleys and hills upon the location of towns, bridges, course of railroads, wagon roads. General views from commanding points on hills or bluffs or high buildings over town and country. Climate and seasons, seasonal changes. Effects of rain-storms and floods. Spring freshets. Snow-storms and ice. Winds. Movements of the sun and moon and the varying length of day and night. The effect of changing seasons upon the occupations of men.

2. Local commerce.

The town as a local trade centre. Roads leading into the country. Products of farms, gardens, and forests brought into town. Railroads, freight offices, and shipment of goods. Local factories and their shipments. Goods retailed to town and country people. A small town is the best illustration for children of a trade centre. A county-seat is usually

the best example of a trade centre for all the roads of the county.

3. Local government.

The town council and how chosen. The mayor and his duties. Town ordinances in regard to police, roads, and bridges, gas or electric lighting, licenses, fire-department, etc. Local magistrates' and justices' courts. Local taxation and the uses to which it is put. The courthouse, county court, and trials. Judges and juries. County records in courthouse. In the home geography, government should deal with well-known people and objects which illustrate the facts of law-making, taxes, election, office-holding, and other duties of magistrates. In other words it should be very concrete and illustrative.

4. Large manufacturing plants.

Visits to shoe-factories, planing-mills, railroad shops, foundries, grist-mills, furniture factories, printing-offices, waterworks, cotton or woollen mills, carriage factories, canneries for fruit or vegetables, wholesale houses, tile-works, and potteries, shipyards, dairies, sugar factories, etc.

These more complex forms of industrial life are better visited in the fourth grade than in the third, and some of them belong in still later years. There should be a discussion in the class after each excursion, with such drawings and pictures as are necessary.

5. A few leading topics of the home state.

This is the first step in the outward movement from

the home. The more striking and less difficult topics call for a very complete description. In New York State, for example, the following may serve: the Hudson River, the Adirondack Mountains, the Erie Canal, fruit-growing (apples and grapes), dairying, Lake Ontario. In the state of Illinois (treated as the home), the list of topics may be as follows: the Illinois River, the prairies, the corn-fields, the Illinois and Michigan Canal (also the Drainage Canal).

The map of the state will be used freely and sketched often in outline on the board.

6. The relief map of North America.

A sand map representing the chief plains and highlands of North America. It can be made by the teacher while describing the continent in its main features. The treatment should be brief and simple, and the ideas gained will help to interpret the flat maps.

7. Large descriptive topics of North America.

A few such bold topics capable of picturesque portraiture may give correct primary notions of mountains, river valleys, coast scenery, forests, lakes, cities, plains, etc. Large pictures and bird's-eye views, panoramic surveys, and landscapes may be secured. Photographs and stereoscopic views of notable scenery are not difficult to secure, and the geographies contain many suitable pictures.

Topics: scenes and descriptions along the Atlantic coast from Labrador to Florida, — capes and head-

lands, fishing fleets, beaches, and bathing resorts, lighthouses, harbors, and cities, islands, rocky coasts, bays, and river mouths. A steamboat trip down the Mississippi River from the Northern lakes to the delta, with pictures. Scenes from the Appalachian Highlands. Cattle ranches in the plains and foothills. The Yellowstone Park and other parks and scenes of the Rocky Mountains. A summer among the woods and mountains of Maine. A winter in Florida. The plateau of Mexico.

8. Journeys around the world.

A trip around the world on the parallel of the home. This forms an interesting base-line, on each side of which cities and countries can be ranged and a helpful comparison of diverse countries be made.

A trip around the world on a meridian. This brings out all the contrasts of climate, the similarity of Northern and Southern hemispheres and the differences.

Steamboat voyage around the world. This is a means of discovering the position of different continents and oceans and some of the peculiar things of ocean navigation. These three excursions may serve to give the children a more definite idea of the geography of the world-whole. Pictures should be freely used.

9. Geography topics suggested by American History Stories.

After completing a history story, a lesson may

well be given, surveying more fully the geographical conditions involved in the story. For example, after completing Champlain's voyages and explorations, a careful survey of the geography of the whole, the St. Lawrence, Nova Scotia, Lake Champlain, the Ottawa River, the homes of the Iroquois and Hurons, the Atlantic Ocean and France, will greatly strengthen both the geography and the history.

Other stories for a similar historical review are Hudson's voyages and explorations, the Pilgrims and the voyage across the Atlantic, Captain John Smith and his exploring trips, Boone and the passes of the Alleghanies, Raleigh's expeditions, Washington's early life.

10. Geographical surveys suggested by European history stories and the Bible stories.

The stories of Abraham, Joseph, and David. Early Italian stories of Rome. Julius Cæsar in Gaul and England. King Alfred and the Danes. The Angles and Saxons.

In all these early history stories of Europe, a distinct emphasis should be placed upon the geography. The transfer of this careful survey to the geography proper will insure a definite comprehension of the geographical situations. In all cases maps and blackboard sketches should be freely used. Pictures and sand maps, and all the means of concrete illustration, are needed to insure clear and correct notions.

LIST OF BOOKS CAREFULLY ARRANGED ACCORDING TO GRADES

The following list of books has been selected for the aid of teachers in carrying out the above course of study.

In each grade the books are divided into two groups (except in third grade).

1. The text-books which constitute the basis of the school work and are of use to both teacher and pupils. The standard text-books can be used in this place.

2. The reference books which are suitable for the children, such as geographical readers, books of travel, closely related books in history and science. These books are useful in the school library, and should be such as the children can consult independently and under the direction of the teacher. They cover a wider range of topics and give much detailed information not possible of incorporation into text-books. They are often well illustrated, and are written mostly in a simple and interesting style. They supplement effectively the work of the text-books, and give, also, an outlet for the activity of the abler pupils in their leisure time.

THIRD GRADE

1. Texts for the immediate use of the teacher.

The Home Geography, First Book (Tarr and McMurry). The Macmillan Co. The topics on

home geography and elementary physiography are well worked out.

Other standard school geographies.

Lessons in Home Geography (McMurry). The Macmillan Co. A series of illustrative lessons and excursions into various home districts fully described.

Lalami, the Little Cliff-dweller (Bayliss). The Public School Publishing Co.

The Seven Little Sisters (Andrews). Ginn & Co.

Each and All (Andrews). Ginn & Co. These two books have been much used in about third grade as an introduction to distant lands and peoples. Simple descriptions of child life and surroundings.

The Wide World. Ginn & Co. 121 pp.

Geographical Nature Studies (Payne). American Book Co. 144 pp. Very simple.

Around the World, First Book (Carroll). The Morse Co. Suitable for children's reading.

Home Geography (Long). American Book Co. 142 pp. Very simple, with illustrations.

Little Lucy's Wonderful Globe. The Macmillan Co.

Big People and Little People of Other Lands (Shaw). American Book Co.

Story of Wretched Flea (Muller). A. Flanagan & Co. The story of a little Chinese boy.

Children of the Palm Lands (Allen). Educational Publishing Co.

Snow Baby (Peary). F. A. Stokes & Co. A true story of Arctic life illustrated with photographs.

Little People of Asia (Alice Thorne Miller). E. P. Dutton & Co.

2. Additional references.

Teacher's Manual of Geography (McMurry). The Macmillan Co. This is designed to go with the Tarr and McMurry Series.

FOURTH GRADE

1. Text-books for direct use, as a guide to the teacher, furnishing a course of study and materials.

Home Geography (continued), First Book (Tarr and McMurry). The Macmillan Co. This book contains a somewhat full treatment of important topics, and can be used in part by the children for seat study and map work.

Other standard school geographies.

Lessons in Home Geography (McMurry). The Macmillan Co. In this, numerous excursions are described as taken with classes of children. Illustrative lessons of home geography are also drawn from different parts of the country.

In the above books is given also a treatment of the world-whole for third and fourth grades.

2. Supplementary books for children's reading and reference. Books for children's reading in this grade must be very simple in language.

Around the World, Second Book (Carroll). The Morse Co. Very good.

Selections from the Youth's Companion, Numbers

10, 11, 12, 13, 14, 15, 16, 17. These are in cheap pamphlet form, well written and illustrated. Perry Mason & Co.

The Wide World. Ginn & Co.

Home Geography (Long). American Book Co.

Big People and Little People of Other Lands (Shaw). American Book Co.

ELEMENTARY SCIENCE

We believe that a point has been reached where a definitely arranged course of nature study for the grades is demanded, and that the controlling points of view from which such a course can be rationally made out may be plainly demonstrated.

Assuming this conclusion to be correct, we may first ask ourselves the advantages which may flow from such a series of topics for a course of study as can now be made.

First. Such a course picks out a few centres where the efforts of teachers and pupils may be concentrated. In view of the countless multitude and variety of nature-study topics, even a moderate degree of success in selecting would be a great unburdening. A course of study which will give us the typical and essential in this vast field will be a priceless economy.

Second. The individual teachers should be relieved of the burden of selecting and arranging such a course. To leave this heavy problem in the hands of young and inexperienced teachers is worse than folly. There are, in fact, very few old and seasoned superintendents who would not hesitate to lay out a

definite course of study in elementary science. Yet their experience and qualifications for such a task must be twenty times that of the average grade teacher. Evidently such a course should be made out for the whole elementary school, not in eight unconnected fragments by eight people of different ideas. A wise superintendent will get together the best of his teachers and experts in nature study, and by mutual coöperation work out this problem. But we greatly need a much better course of study than has yet been worked out in this way. That the average grade teacher is wholly unqualified for this great task and should not be burdened with it ought to be frankly admitted.

Third. When a fairly good course of study (properly arranged through the grades with its great series of well-established centres) has been marked out, the rich and appropriate knowledge may be collected which is able to make these topics fruitful and profitable to children. This collecting of choice knowledge is a nice problem, requiring no small degree of scientific skill and pedagogical experience. To enrich these central topics with concrete knowledge appropriate to children is undoubtedly the work of specialists.

To expect the average teacher to hunt up and bring together this fine assortment of knowledge and material is pure hallucination. An enthusiastic teacher of large experience, by overwork, or by

neglecting other important things, may accomplish this task for a single grade, but it is wholly unreasonable to expect it or to require it of anybody.

It is the business of specialists to select and organize this choice material of instruction and to put it into the handiest form for the teacher's immediate use. To master, assimilate, and skilfully use this gathered material in classes is the special task of the grade teacher, and this requires a full measure of labor, originality, and skill.

Already a goodly number of important topics have been worked over in this way by specialists, and the suitable material brought into convenient form for the grade teacher. Enough, therefore, has been accomplished to demonstrate the feasibility of this plan. The poor results that have come from nature-study lessons have been due largely to the double burden which has been laid upon grade teachers, that of first collecting and working up the knowledge of these topics without proper helps, and that of the legitimate work of skilful ordering and instruction. We have been expecting grade teachers to make bricks without straw. The doctrine of division of labor applies with redoubled force to this branch of instruction in its present condition.

Fourth. On the basis of the two points just named, it is possible for the teacher to concentrate her labors upon her peculiar task; namely the mastery of this well-assorted material for the purposes of skilful

instruction; in short, what may be called knowledge and method. The principles of science instruction have been well worked out in full illustrations of the treatment of important topics. The study of these illustrations involves no slavish imitation of others' methods and processes, but rather a rational and even critical study of what the best teachers have done. This offers to every teacher a profitable field for thoughtful study, rational imitation of good models, and the development of original power and resource.

Fifth. A well-arranged series of topics extending through the grades makes possible an orderly development of certain coherent lines of thought from year to year. Most people have felt the inherent weakness of our elementary science courses when judged from this fundamental point of view. Latin and arithmetic, for example, are supposed to possess this underlying coherency of thought, so that each later year's work is reënforced and strengthened by the earlier, and is, in fact, dependent upon it. The broad sweep and variety of nature studies have seemed to obliterate any connected plan and have left us in the confusion of a multitude of details.

There are, however, a few important centres of nature-study work whose topics recur from year to year in continuous development. Such, for example, are the topics connected with health and physiology, plant life, sanitation, cooking, gardening and agriculture, applied physics, insect life, etc. In spite of

the apparent miscellaneous character of its topics the great body of science lessons consists of several strong series of connected topics running through the grades. No study can be strongly educative that does not thus build steadily upon previous foundations. There is scarcely a lesson in the middle and later grades that does not reach back into two or more, often many, of the previous lessons. Good teaching will always recall these previous lessons and make use of them in building up an enlarged body of connected knowledge.

A well-arranged course of study enables the teacher in any of the later grades to look back and to find out the previous acquisitions of the children, to review these lessons and bring them into proper relation to the later studies. This review and focussing of all earlier lessons upon later ones is the essence of good teaching. Without a course of study or with a poor one this important result is defeated.

Sixth. A well-selected course of study in elementary science makes it possible for the teacher in any grade to concentrate her studies upon a few important topics suited to that grade, so as to become well equipped for teaching them. The great majority of elementary teachers have not been trained for teaching nature study, and they must pick up the essentials by the way. If the sources of knowledge are made easily available, energetic teachers will soon acquire an abundant material of experience and informa-

tion. But it must be of the right sort and easily at hand.

The following course of study contains a much larger list of topics than can be worked out fully in any one school, and will have to be modified to fit the needs of any particular locality. Every school will have to change such a plan to meet its own needs.

Different neighborhoods (city and country or village life), and physical and climatic conditions in different parts of the United States, are so widely divergent that a definite course of study must be changed and adapted to local surroundings and needs.

For these reasons any one course of study should be suggestive of broad and common lines of study, and yet as definite as possible in specific, typical topics.

OUTLINE OF NATURE STUDY

FALL TERM. — FIRST GRADE [1]

1. *Birds.* (*a*) Note the coming of the fall and winter birds after acquainting the children with them through the use of mounted specimens or colored pictures. Good colored pictures of birds can be obtained from the Perry Pictures Co., Malden, Mass., or from A. W. Mumford, 378 Wabash Avenue,

[1] These topics need not be taken up in the order given here. The changes in nature will suggest the order.

Chicago, Ill. Do not use too many pictures. See that accurate outdoor observations are the main thing. Children easily deceive themselves and describe for outdoor observations what they remember of the pictures. In northern Illinois the children will look for the nuthatches, the brown creepers, the kinglets, the juncos, and the chickadees.

(*b*) Report every day that the robin and blackbird are seen. They will probably be last seen in October.

(*c*) What other birds are here?

2. *Flowers.* (*a*) Learn the names of the common fall flowers and associate with each a few striking characteristics. Press a good specimen of each variety and mount all on a large sheet of cardboard, writing or printing by each its name and date. Where is each found and in company with what other flowers? (*List* of half dozen.)

(*b*) Study cinquefoil, evening primrose, and horsemint, or other common flowers.

(*c*) Early in the term study the blossom and plants of nasturtium and Lima bean. Save seeds of each for spring planting.

3. *Trees.* (*a*) Learn to recognize trees by their fruits and by their leaves. The identification is associated with gathering the beautiful autumn leaves and nuts.

(*b*) Press some of the leaves and mount on a large sheet of cardboard, placing by the side of each leaf its fruit in all cases where the latter can be obtained.

(*c*) Notice the galls on the oak, cottonwood, willow, and linden trees. Open to find what each contains.

4. *Vegetables.* Recognize and name the fall vegetables. Model in clay.

5. Detailed study of the apple and the peach. Plant apple seeds and peach pits.

6. *Domestic animals.* Life histories of the cat and the dog.

7. *Wild animals.* Home life of the squirrel.

8. *Insects.* Early in September gather a few grasshoppers, locusts, and crickets. Place each kind in a glass jar in which there are three or four inches of soil. Feed with grass and bits of apple, beet, and carrot. Try other articles of food. See that they are fed each day. Quite likely some of them will lay eggs in the ground.

Find how the cricket's chirp is made.

9. *Weather charts.* Each month rule off on a large sheet of cardboard as many one and one-half inch squares as there are days in a month. Make seven in a row, one for each day in the week. On a bright day place a yellow circle in the square in which the day's weather is to be recorded. On a cloudy day use a gray circle. A half circle of yellow or gray indicates the kind of weather for a half day. Special days, *e.g.* Washington's Birthday, may be marked by some emblem of significance of the day placed upon the circle.

Make summaries at the end of each week of the

number of bright days and the number of dark days during that week. At the end of a month find the number of bright days and the number of dark days in the month. At the end of the year compare the calendars to find the pleasantest month and the darkest month.

HELPS

1. *Migration of birds.*

Everyday Birds (Bradford Torrey).
How to Attract Birds (Neltje Blanchan).
First Book of Birds (Olive Thorne Miller).
The Foot-path Way (Bradford Torrey).
Bird Life (Frank Chapman).

2. *Helps in the naming and study of flowers.*

Nature's Garden (Neltje Blanchan).
A Guide to the Wild Flowers (Alice Lounsberry).
Field Book of American Wild Flowers (F. Schuyler Mathews).
Familiar Flowers of Field and Garden (F. Schuyler Mathews).
According to Seasons (Frances Theodora Parsons).
Wild Flowers of America (Goodale).
For the study of the nasturtium, see —
Lessons in Nature Study (Mrs. Lida McMurry).
Flowers and their Friends (Margaret Morley).
A Few Familiar Flowers (Margaret Morley).
A good botany will help in the study of both the nasturtium and the bean.

3. *Helps in the study of the trees.*

Our Native Trees and How to Identify Them (Harriet S. Keeler).

Familiar Trees and their Leaves (F. Schuyler Mathews).

Trees of the Northern United States (Austin C. Apgar).

See chapter on "Galls" in Among the Moths and Butterflies (Julia P. Ballard).

4. *Vegetables.*

Lessons in Nature Study (McMurry).

5. *The apple.*

For appreciation of the apple, see —

The Apple (John Burroughs).

Nature Study and Life (Hodge).

6. *The peach.* See —

Lessons in Nature Study (McMurry).

7. *The cat.*

The Cat (R. S. Hinderkoper).

Our Home Pets (Olive Thorne Miller).

Schmeil, Introduction to Zoölogy.

8. *The dog.*

Animal Memoirs, Part I (Dr. Lockwood).

Our Home Pets (Olive Thorne Miller).

Special Method in Science (McMurry).

Domesticated Animals (N. S. Shaler).

The Play of Animals (Karl Groos).

Training of a Hunting Dog, *Country Life in America*, November, 1903.

Beautiful Joe.
Science Reader, Book I.
Lange's Handbook of Nature Study.
Cats and Dogs (James Johonnot).
Lives of the Hunted (Ernest Thompson Seton).

9. *The squirrel.*
Squirrels and Other Fur-Bearers (John Burroughs).
Lobo, Rag, and Vixen (Ernest Thompson Seton).
Lessons in Science (McMurry).
Wild Neighbors (Ernest Ingersoll).
Winter Sunshine (John Burroughs).
Country Cousins (Ernest Ingersoll).
Life of Animals (Mammals) (Brehm).

10. *For study of grasshoppers, locusts, and crickets,* see —
Life Histories of American Insects (Clarence Moores Weed).
Little Folks in Feathers and Fur (Olive Thorne Miller).
Zoölogy, 2 vols. (Colton).
Insect Life (John Henry Comstock).
Needham's Elementary Lessons in Zoölogy.

WINTER TERM. — FIRST GRADE

1. *Domestic animals.* Study of the cow, the horse, and the tame rabbit.

2. *Wild animals.* Life of the gray rabbit, comparing it with that of the tame rabbit.

3. *Clothing of the children*, connected with the use, and adaptability to use, of the coats of animals previously studied. Kinds and uses of clothing. Dangers of scanty or wet clothing.

4. *Goldfish.* Uses of fins and tail in moving about. How they eat. How they breathe.

5. *Frost.* As seen in its effects; *e.g.* painting of the window-panes, breaking of pitchers and water-pipes.

6. *Birds.* (*a*) Have a care for the winter birds. Attract them to the school building by providing meals in a certain spot every day. Hang suet in trees near by.

(*b*) The latter part of the term look for the return of the early spring birds. In northern Illinois they are the robin, bluebird, blackbird, red-winged blackbird, meadow-lark, and song-sparrow.

7. Plan the school garden and get seeds of Lima bean and nasturtium ready for planting in boxes in the house early in the spring term.

8. *Trees.* (*a*) Watch for pussy-willows and silver-maple blossoms. (*b*) Early in the term notice the large buds of some tree, *e.g.* the buckeye or hickory. See if any changes appear in these buds later in the term.

HELPS

1. (*a*) The cow.

Cats and Dogs (James Johonnot).

Davenport, Leaflets on Agriculture in the School News.

(*b*) The horse.

The Horse (Flower).

Modern Science Series.

Black Beauty (Sewell).

Cats and Dogs (James Johonnot).

2. *Gray rabbit.*

Wild Neighbors (Ernest Ingersoll).

Animal Memoirs, Part I (Dr. Lockwood).

Squirrels and Other Fur-Bearers (John Burroughs).

Lobo, Rag, and Vixen (Ernest Thompson Seton).

Science Reader, Book 2 (Vincent T. Murché).

Four-footed Americans (Mabel Osgood Wright).

3. *Clothing.*

Science Reader, Book 5 (Vincent T. Murché).

Zoölogy, 2 vols. (Colton).

4. *Goldfish.*

5. *How to attract the birds.*

Everyday Birds (Bradford Torrey).

First Book of Birds (Olive Thorne Miller).

How to Attract the Birds (Neltje Blanchan).

Nature Study and Life (Hodge).

The Clerk of the Woods (Bradford Torrey).

Birds in the Bush (Bradford Torrey).

The Foot-path Way (Bradford Torrey).

Bird-dom (Leander Keyser).

In Bird Land (Leander Keyser).

Home Studies in Nature (Mary Treat).

Bird Homes (Dugmore). Doubleday, Page, & Co.

6. *School gardens.*

How to Make School Gardens (Hemenway).

Kindergarten Review, 10: 22.

Garden Making (Bailey).

7. In addition to the books already mentioned on trees, see —

Little Wanderers (Margaret Morley), for study of the pussy-willow, and

Talks Afield (L. H. Bailey).

Ten New England Blossoms (Clarence Moores Weed).

Seed Travellers (Clarence Moores Weed).

Study of Trees in Winter (Hutchinson).

Flower and Fruit (Jane H. Newell).

Lessons with Plants (L. H. Bailey).

Our Native Shrubs (Keeler).

SPRING TERM. — FIRST GRADE

1. *Birds.* (*a*) Watch for the newcomers. There will be many of them. Learn their names before they come, if possible, as suggested before. Notice what the birds are doing, and make daily reports if there is anything of interest to tell. Hold closely to actual observations.

(*b*) Study in detail the robin and the red-headed woodpecker.

2. *Flowers.* (*a*) Watch for the early spring flowers. As they are brought in, press one of each and mount on a large cardboard, giving its name and the date when found.

(*b*) Study in detail the violet and (*c*) the spring beauty.

3. *Trees.* (*a*) Watch the development of the buds studied last term. Watch, also, the development of the buds of the apple and peach to complete the study of these fruits begun in the fall.

(*b*) Notice what trees are first in leaf and identify trees by their green leaves.

(*c*) Gather seeds of silver maple, elms, willows, cottonwood, and poplars, — any or all of these, — and complete the tree charts begun in the fall.

(*d*) Plant seeds of each in the school garden and watch their growth.

(*e*) Watch and care for the seedling apple and peach trees.

4. *Germination of seeds.* Early in the term plant in boxes in the schoolhouse seeds of Lima bean and nasturtium. Watch and describe developments. This will complete the study of these plants which was begun in the fall.

5. Plant in the school garden Lima beans and nasturtiums for fali study of the entering classes. Watch their growth and give them good care, watering, if necessary, and keeping free from weeds.

Raise enough beans so that the children may store

up a quantity of the ripe seeds to send out at Thanksgiving time to those who are in need. The nasturtium blossoms may be sent to sick rooms or to children's hospitals, and may be used also to decorate the schoolrooms.

HELPS IN SPRING STUDY

1. (*a*) *How to identify the birds.*

Bird Neighbors (Neltje Blanchan).
Birds that Hunt and are Hunted (Blanchan).
Bird-dom (Leander Keyser).
Bird Life (Frank M. Chapman).
Handbook of Birds (Chapman).
The Common Land Birds of New England (Wilcox).
Wild Birds in City Park (Walter).

(*b*) *Robin.*

Animal Memoirs, Part II (Dr. Lockwood).
Birds and Poets (John Burroughs).
Upon the Tree-tops (Olive Thorne Miller).
Birds through an Opera Glass (Florence Merriam).
Lessons in Science (McMurry).

(*c*) *Red-headed woodpecker.*

The Woodpeckers (Eckstorm).
Animal Memoirs, Part II (Dr. Lockwood).
Nestlings of Forest and Marsh (Irene Grovenor Wheelock).
Lessons in Nature Study (Mrs. Lida McMurry).

2. (*a*) *How to identify the flowers* — see books suggested for flower study.

   (*b*) *The violet*, see —

   Lessons in Nature Study (McMurry).

   Flowers, Fruits, and Leaves (Sir John Lubbock).

   Familiar Flowers of Field and Garden (F. Schuyler Mathews).

   Ten New England Blossoms (Clarence Moores Weed).

   Flower and Fruit (Jane H. Newell).

   (*c*) *The spring beauty*, see —

   Lessons in Nature Study (McMurry).

   Ten New England Blossoms (Clarence Moores Weed).

   How to Study Plants (Alphonse Wood).

   Flower and Fruit (Jane H. Newell).

3. (*a*) *For study of buds*, see —

   Lessons with Plants (L. H. Bailey).

   Bailey's Botany.

   Outlines of Lessons in Botany (Jane H. Newell).

   Lessons in Nature Study (McMurry).

   The Clerk of the Woods (Bradford Torrey).

   (*b* and *c*) See books on study of trees suggested for fall study.

4. *For germination of seeds*, see —

   Outlines of Lessons in Botany (Jane H. Newell).

   Concerning a Few Common Plants (Goodale).

   Atkinson's Botany.

Seed Babies (Margaret Morley).
Lessons with Plants (L. H. Bailey).
From Seed to Leaf (Jane H. Newell).
Lessons in Botany (Gray).

FALL TERM. — SECOND GRADE

1. (*a*) Review and continue the study of birds begun a year ago, learning the names and habits of additional birds.

(*b*) The common crow.

2. (*a*) Review the names and characteristics of the fall flowers learned a year ago. Add to the list many others.

(*b*) Study the pumpkin flower and fruit.

(*c*) Study the melon by comparison with the pumpkin.

(*d*) Study the sweet pea by comparison with the Lima bean.

(*e*) By comparison with the pea and bean study the red, white, and sweet clovers.

(*f*) Study in detail the wild black mustard. Later compare the hedge mustard and cresses with it.

(*g*) Study the sunflower as a type of the composites so common at this time of year.

(*h*) Compare other composite flowers, as the asters and daisy fleabane, with it.

(*i*) Study in detail the morning-glory.

(*j*) Save seeds of pumpkin, morning-glory, sweet pea, and sunflower for spring planting.

3. *Trees.* (*a*) Review the trees with their names as autumn leaves are gathered and learn the names of the other trees.

(*b*) When the leaves are off the trees learn to recognize the different trees by their buds, by their outline, and by their bark. Let this study include the cherry and pear.

(*c*) Gather acorns of the different kinds of oak growing in the vicinity and plant in the school garden where they will not be disturbed in the spring. Mark plainly the portion of ground occupied by each variety. Make a plat of the tree bed, also, for reference in the spring.

(*d*) Winter study of the Austrian pine.

(*e*) Other evergreen trees by comparison with the pine. Study just before Christmas.

(*f*) Continue to care for apple and plum seedlings.

4. *Fruits.* Detailed study of the grape. Make cuttings of the vine and plant in the tree garden. Plant seeds also.

5. *Butterflies.* (*a*) Detailed study of the "cabbage-worm" and milkweed caterpillar early in the term. Find eggs of the butterflies, if possible, and watch their development through the larva and chrysalid state. If the eggs cannot be procured, the caterpillars may be found. Collect and feed. Study the butterflies.

(*b*) Collect other caterpillars and feed. Notice how they feed and how they make their cradles or

change into chrysalids. Supply dirt, leaves, and twigs.

(*c*) Collect cocoons and keep through the winter in the schoolroom.

6. Dissemination of seeds. Notice two different ways of getting out into the world: (*a*) by flying, using wings, or a parachute; (*b*) by stealing rides on clothing or on the coats of animals.

7. *Bulbs.* Plant bulbs of crocus and tulips out of doors.

By the first of October put Chinese lily bulbs into glass dishes of water and plant the paper — white narcissus in pots for fall blossoms. Prepare proper soil. At intervals of two weeks or more plant a new supply of each.

8. Make calendars in book form in which records of the dark and sunny days are kept in colored crayons. The directions of the cold winds, the warmer winds, and the winds that bring the snow are indicated by arrows pointing in the direction from which the wind comes.

9. Winter study of other evergreen trees.

10. Make in water-colors a picture of the landscape as it appears at the beginning of each month.

HELPS FOR FALL TERM

1. (*a*) See books suggested for the bird study of the previous year.

(*b*) The crow.

Some Common Birds in their Relation to Agriculture. Hawks and Owls from the Standpoint of a Farmer. The Common Crow. All published by the United States Department of Agriculture.

Animal Memoirs, Part II (Dr. Lockwood).

Upon the Tree-tops (Olive Thorne Miller).

Birds through an Opera Glass (Florence Merriam).

Winter Sunshine (John Burroughs).

Little Brothers of the Air (Olive Thorne Miller).

The Play of Animals (Karl Groos).

Bits of Bird Life (Youth's Companion, Supplementary Reading No. 7).

2. For study of fall flowers see books recommended for first grade.

For helps in the study of the sweet pea, see —

Life Story of the Sweet Pea, in First Studies in Plant Life (George Francis Atkinson).

For study of the clovers, see —

Lessons with Plants (L. H. Bailey).

Chapters in Modern Botany (Patrick Geddes).

For study of the morning-glory, see —

Flowers and their Friends (Margaret Morley).

3. *Trees.* (*a*) See the names of books on study of trees given in first grade.

Nut-planting, see —

Nature Study and Life (Hodge).

Nut Culture in the United States, United States Department of Agriculture.

The Forest Nursery, Bulletin No. 29, United States Department of Agriculture (Bureau of Forestry).

4. *The grape.*

Nature Study and Life (Hodge).

Government Bulletin on the Grape.

5. *Milkweed butterfly.*

Among the Moths and Butterflies (Julia P. Ballard).

Life Histories of American Insects (Clarence Moores Weed).

The Butterfly Book (Dr. W. J. Holland).

Practical Zoölogy (Buel P. Colton).

The Milkweed Butterfly (Samuel H. Scudder).

Everyday Butterflies (Samuel H. Scudder).

6. *Cabbage butterfly.*

Among the Moths and Butterflies (Julia P. Ballard).

Needham's Elementary Lessons in Zoölogy.

The Butterfly Book (Dr. W. J. Holland).

Stories of Insect Life (Clarence Moores Weed).

Everyday Butterflies (Samuel H. Scudder).

7. *Dissemination of seeds.*

Little Wanderers (Margaret Morley).

Fertilization of Plants (Sir John Lubbock).

Seed Travellers (Clarence Moores Weed).

Seed Dispersal (W. J. Beal).

Glimpses of the Plant World (Bergen).
First Studies in Plant Life (George Francis Atkinson).
Plant Studies (Coulter).
A Reader in Botany (Jane H. Newell).

8. *Bulbs.*
The Winter Window Garden, in Country Life, November, 1903.
Flowers and their Friends (Margaret Morley).
How to Study Plants (Alphonse Wood).

9. Study of Austrian pine, see —
Lessons in Nature Study (Mrs. Lida McMurry).

WINTER TERM. — SECOND GRADE

1. *Birds.* (*a*) What birds remain all winter? (In northern Illinois we have the English sparrow, blue jay, crow, prairie horned lark, screech owl, brown creeper, downy and hairy woodpeckers, junco, and chickadee.) What do they feed upon in the winter?

(*b*) As in the first grade, attract the winter birds to the school building and the homes of the pupils by furnishing a tempting bill of fare.

(*c*) Study in detail the hen.

(*d*) Study the English sparrow.

(*e*) Note the time of the return of the birds from the South. Keep a record in a note-book which the children prepare especially for the purpose.

2. (*a*) Search the woods for the March flowers.

In northern Illinois the following may sometimes be found: (*a*) hepatica, (*b*) spring beauty, and (*c*) a few dandelions. Often other varieties are to be found.

(*b*) Study the crocus in March.

3. *Trees and vines and bushes.* (*a*) In March watch the development of the (i) lilac buds, also buds of (ii) the American elm, and (iii) box elder.

(*b*) Watch the cherry and the pear buds to see if any changes occur.

(*c*) Notice occasionally the buds of the grapevine to see if they are swelling.

4. *Study of stones and pebbles.*

5. Make a picture of the landscape in water-colors at the beginning of each month.

6. *Good health.* To what due? (*a*) Fresh air and exercise. Breathing.

(*b*) Care of the skin. Why keep clean?

(*c*) Care of the teeth. Why?

(*d*) Care of the finger-nails. Why?

(*e*) Sleep. When? How long?

(*f*) Getting the feet wet. Wet clothing and the danger.

HELPS

1. *Birds.*

(*a*) See books suggested for first year's work.

(*b*) Food of Birds.

Seed Travellers (Clarence Moores Weed).

How to Attract the Birds (Neltje Blanchan).

Nature Study and Life (Hodge).

(*c*) The hen.

Domesticated Animals (N. S. Shaler).

Animal Memoirs, Part II (Dr. Lockwood).

(*d*) English sparrows.

Lives of the Hunted (Ernest Thompson Seton).

Birds' Ways (Olive Thorne Miller).

Nature Study and Life (Hodge).

(*e*) Spring migration. See books suggested the previous year.

For study of buds see books suggested the previous year.

2. *Stones and pebbles.*

First Lessons in Geology (N. S. Shaler).

Town Geology (Charles Kingsley).

How to Read a Pebble (Fred L. Charles).

SPRING TERM. — SECOND GRADE

1. *Birds.* (*a*) Continue to note the arrival of the common summer residents.

(*b*) Watch for the warblers and other birds that pass through on their way North.

(*c*) Make a record in the Bird Note-book of the time at which each appears.

(*d*) Make a careful study of the robin.

(*e*) Study the nesting habits of other songsters.

(*f*) Study the red-headed woodpecker.

2. *Flowers.* (*a*) Each child make a collection of spring flowers, pressing and mounting in a book,

and writing beside each flower the name and date on which it was found. Take care not to waste the flowers.

(*b*) Study the tulip.

(*c*) Follow one dandelion blossom from the time it first appears above ground through the ripening of the seed. Pupils keep a written record of what they discover.

(*d*) Study the hepatica.

(*e*) Study the wild rose.

3. *Trees and vines.* (*a*) Follow the growth of the seedlings from the acorns and nuts planted in the fall. Keep the nut bed clean and transplant the seedlings when necessary.

(*b*) Spring study of the Austrian pines and other evergreen trees.

(*c*) Follow the blossoms of the cherry buds into ripened fruit and the pear buds into fruit.

(*d*) Follow the buds of the American elm, box elder, and lilac into leaf and through blossom.

(*e*) Follow the buds of the grape until the fruit is well set.

(*f*) Care for the grape cuttings.

4. *Seed planting.* Plant in the school garden seeds of (*a*) sweet pea, (*b*) morning-glory, (*c*) sunflower, and (*d*) pumpkin. Watch and describe the development in each case. (*e*) Late in the term plant cherry pits in the school garden.

5. Get frog or toad spawn and watch the changes.

6. Make in water-colors the appearance of the landscape the first of each month.

HELPS

1. (*a*) The warblers.

The Clerk of the Woods (Bradford Torrey).

(*b*) Robin.

Birds and Poets (John Burroughs).

Upon the Tree-tops (Olive Thorne Miller).

Birds through an Opera Glass (Florence Merriam).

Animal Memoirs, Part II (Dr. Lockwood).

Nestlings of Forest and Marsh (Irene Grovenor Wheelock).

Bits of Bird Life (Youth's Companion, Supplementary Reading No. 7).

The Clerk of the Woods (Bradford Torrey).

(*c*) Nesting habits.

Nestlings of Forest and Marsh (Irene Grovenor Wheelock).

Bird Homes (Dugmore). Doubleday, Page, & Co.

Sharp Eyes (John Burroughs).

(*d*) Study the red-headed woodpecker.

The Woodpeckers (Eckstorm).

Bits of Bird Life (Youth's Companion, Supplementary Reading No. 7).

Animal Memoirs, Part II (Dr. Lockwood).

The Clerk of the Woods (Bradford Torrey).

Nestlings of Forest and Marsh (Irene Grovenor Wheelock).

2. *Flowers.*

(*a*) Tulip.

(*b*) Dandelion.

Bailey's Lessons with Plants.

First Studies in Plant Life (George Francis Atkinson).

Flowers, Fruits, and Leaves (Sir John Lubbock).

Familiar Flowers of Field and Garden (F. Schuyler Mathews).

Little Wanderers (Margaret Morley).

Little Travellers (Clarence Moores Weed).

(*c*) Hepatica.

How to Study Plants (Alphonse Wood).

Familiar Flowers of Field and Garden (F. Schuyler Mathews).

(*d*) Wild rose, see —

Lessons in Science (Mrs. Lida McMurry).

Flowers and Ferns of United States (Thomas Meehan).

2. *Tree seedlings.*

Life Story of the Oak, in First Studies in Plant Life (George Francis Atkinson).

4. *Buds.* See Helps for previous year.

5. *Frogs and toads.*

Nature Study and Life (Hodge).

FALL TERM. — THIRD GRADE

1. *Plants of the garden and yard* (continuation of spring studies). (*a*) The sunflower. Its powers of growth during the summer. Where it is usually found. Springs up in gardens where sunflowers have grown the year before. Period of growth. Study of the great heads, size, and arrangement of parts. Use of seeds by birds. Number of seeds; number of heads. Suggest comparison with other composite flowers in the fall; other large annuals, as corn plant, giant ragweed, mustard, etc.

(*b*) Dandelions in the fall. Tendency to spring up and blossom during summer and fall till winter begins. Due to wet weather, strong rootstock, and many buds or sprouting stems.

References.

How to Study Plants (Wood), pp. 143–147.
Handbook of Nature Study (Lange), pp. 50–57.
Plants and their Children (Dana).

(*c*) The pumpkin. Growth and extent of vines during summer and fall. Number of blossoms and pumpkins on a vine. Continuous growth and formation of new pumpkins till frost. Effects of frost. Interior structure of pumpkin. Uses to man and as feed for stock. Similarity to squashes and melons. Origin of the pumpkin; its use among Indians and pioneers. In connection with this lesson, review the

planting and germination of pumpkin seeds in the spring.

(*d*) The morning-glory. Growth of vines and how they climb. Tendrils. Flowers, pods, and seeds. Shutting and opening of blossoms. Visited by insects. Effect of frosts upon the vine. Other climbing plants cultivated about the house and garden, and a brief comparison.

(*e*) Growth of seedling trees in the garden and yard (continuation). Amount of growth in length and size during the season. Differences in different kinds of seedlings: oaks, elms, maples. Note the natural springing up of different seedlings at different seasons of the year. Take care of seedlings in the garden for later transplanting.

(*f*) The grapevine (continuation). Growth of the vine during the season. Tendrils and climbing habit. Amount of growth. Care of cuttings. Ripening of the fruit. Kinds of fruit. Care and cultivation of the vines. Pruning. Preparation for winter. Compare vine and fruit of the wild grapevine with the cultivated varieties. Effects of cultivation.

References.

A Few Familiar Flowers (Morley).

How a Squash Plant Grows out of the Seed. Cornell Teachers' Leaflets, No. 1.

The Practical Garden Book (Bailey).

2. *The robins, bluebirds, and blackbirds in the fall*

(review and continuation). Food and haunts in the fall. To what extent are they seen in the fall? Where they spend the winters. Notice the collection of great flocks of blackbirds in the fall in the groves and corn-fields. Other birds in fields and hedges. Observe the old nests and their construction.

References.

The Woodpeckers (Eckstorm).
Some Common Birds. Farmers' Bulletin, No. 54, or First Book of Birds (Miller).
Birds of Village and Field (Merriam).
Birds of the United States (Apgar).

3. *Trees of orchard and grove.* (*a*) The apple tree. Review of spring studies. The orchard; early and late apples. Chief common kinds, size, appearance, and quality. Wormy apples and reasons. Failure of some trees to bear fruit though blossoming freely. Reasons.

References.

Nature Study and Life, Chapter XI (Hodge).
The Nursery Book (Bailey).

(*b*) Austrian Pine. Amount of growth during the the season. Buds. Keeping the leaves. Excursions to the grove. Seedlings. Growth of the cones. Collection of cones, buds, and needles. The evergreen grove or forest. Kinds and age of trees. Birds which nest and roost among the evergreens, as

crows, woodpeckers, etc. When the needles fall. Growth of new needles.

References.

First Book of Forestry (Roth).

Trees of Northern United States (Apgar).

Nursery Book (Bailey).

Evergreens, and How they Shed their Leaves. Cornell Teachers' Leaflets, No. 13.

(*a*) *The grasshopper or locust in the field.* Life in the meadow. Movement of grasshoppers. Their food and organs. Powers of leaping and flying. Young and old. Nymphs. Their moulting and growth. Collection and feeding of specimens. The life history. Depositing of eggs. Protective coloring. Enemies that feed upon them. Chickens. Migrations of grasshoppers. Their ravages. Other insects of the meadows: crickets, katydids, the walking stick.

References.

Elementary Lessons in Zoölogy. The Grasshopper, p. 48 (Needham).

Life Histories of American Insects, Chapters VII, VIII, and IX (Weed).

Nature Study and Life (Hodge).

(*b*) Cockroaches. A pest in the house. Places infested by them. How to get rid of them.

References.

Book of Bugs (Sutherland).

Domestic Science in Elementary Schools (Wilson).

5. The kitchen. Garden vegetables brought into the kitchen. The cleaning and preparation of vegetables for the table. What vegetables require no cooking: lettuce, radishes, celery. Those requiring cooking and why, as potatoes, beets, onions, parsnips, beans, and peas. The effects of cooking on taste and quality of foods.

References.

The Chemistry of Cookery (Williams).

Domestic Science in Elementary Schools (Wilson).

The Vegetable Garden. Farmers' Bulletin, No. 94.

6. The effects of cold and frost with approaching winter. Changes in temperature measured by thermometer. Effects on gardens and vegetation. The forest. Effects upon animals. Hairy covering. Changes in clothing with approaching winter. The formation of ice in a pail. In ponds and streams. Effects of cold in the house. Heating. Uses of the thermometer. Changes in position of the sun and length of day with approaching winter.

References.

Notes on the Frost. Farmers' Bulletin, No. 104.

WINTER TERM. — THIRD GRADE

1. *Pet animals and birds.* (*a*) Barnyard fowl in winter. Warm chicken houses. Pet chickens and ducks. Food: grain, waste from the table. Need of

sand and gravel. Watering the fowl. Danger from extreme cold.

(*b*) Pet canary bird in cage. Care in providing bird-food, water, warmth, perches, bathing-dish. Observe its motions, behavior toward friends and strangers. Its fear of cats and the danger of cats. Its songs and speech. The parrot. Its food, talk, etc.

References.

Fowls, Care and Feeding. Farmers' Bulletin, No. 41.

Ducks and Geese. Farmers' Bulletin, No. 64.

2. *House plants.* Care of plants by the children.

(*a*) What house plants are kept in winter. Position at windows or otherwise. Care of house plants: heat, water, soil, sun. Geraniums and begonias. Propagating. Visit to a hothouse. How warmed. Native homes of hothouse plants. Insects infesting plants and how to deal with them.

(*b*) Tropical fruits: orange, lemon, and banana. Trees in hothouses.

References.

The Practical Garden Book (Hunn and Bailey).
Garden Making (Bailey).

3. *Uses of fire about the house.* (*a*) Heating. Effects as shown by thermometer. Kinds of fuel used: wood, hard and soft coal, oil, gas. Other combustible things. How fires are started. Matches. Kindling. Dangers from fire.

(*b*) Cooking. Several ways of cooking with fire: boiling, roasting, broiling, baking, steaming.

(*c*) Laundry use.

(*d*) Uses of chimneys, stoves. Fireproof materials.

(*e*) Other uses of fire. In working metals. Blacksmith. Tinner. Soldering. For engines and steam.

(*f*) Source of heat in the sun.

4. *Foods and eating.* (*a*) Variety of useful foods, meats, fruits, vegetables, fish, etc. Most nourishing foods and drinks. Hurtful foods and drinks. Unripe and spoiled fruits. Bad habits in eating. Rapid eating. Not chewing food. Intemperance in eating and drinking. Use of the teeth. The care of the teeth. Structure of the teeth. Neglect and injury to the teeth. Advice of a dentist in regard to the teeth. Excessive eating of candies and sweetmeats. Poorly cooked foods. How cooking improves foods. Good manners at the table. The decoration of the table with flowers and fruits.

References.

Foods, Nutritive Value and Cost. Farmers' Bulletin, No. 23.

Domestic Science in Elementary Schools (Wilson).

5. *Signs of returning spring.* (*a*) Days growing longer. Sun higher. Sunset points.

(*b*) Breaking up of ice; melting of snows; floods.

(*c*) Returning of birds. Examples: robin, meadow-lark, bluebird, song-sparrow.

Early plants and flowers. Crocus, tulip, anemone, hepatica (review).

Birds departing for the North, chickadee, snow-birds, etc.

(*d*) Trees. Sap running, buds swelling. Willow.

(*e*) Animals coming from winter homes. Squirrels, frogs, turtles, insects.

(*f*) Changes in the appearance of the woods and fields.

(*g*) Average temperature out of doors. Thermometer.

(*h*) Cloudy and rainy weather. Bad roads, mud.

(*i*) Grass on lawn and fields takes on a green tint.

(*j*) Cause of all these changes.

(*k*) Effects upon people. Preparation of farmers and gardeners for spring work.

6. *The window garden in March.* Boxes and soil. Germination of garden and flower seeds. Care of growing plants. Transfer to school garden later.

References.

The Practical Garden Book (Hunn and Bailey).
Garden Making (Bailey).
Plants and their Children (Dana).

SPRING TERM. — THIRD GRADE

1. *The garden.* (*a*) The school garden. Preparation of the soil. Planting of beans, peas, corn, and potatoes, four-o'clock and aster.

Careful cultivation. Weeds and grasses. Notice effects of weather, storms, warm days, etc. Watch growth of the plants. Continue study of these in fall.

(*b*) Encouragement of home gardens. Visit such gardens and compare with school garden. The home garden may be continued more easily through the summer.

(*c*) Visit larger gardens and notice modes of cultivation, tools, results, etc.

(*d*) Special study of plants being raised in the garden, as to seed, soil, cultivation, grubs and insects injurious to plants. Caterpillar on parsnip and parsley.

(*e*) The potato plant. Underground stem and tubers. The blossom. The potato-beetle. Its harm, and how to destroy it.

References.

Garden Making. Suggestions for utilizing Home Grounds (Bailey).

The Practical Garden Book (Bailey).

The Soil (King).

2. *Roadside and field plants.* (*a*) Plantain, curly dock, wild parsnip, dandelion, daisy fleabane, sweet clover, and other rootstocks. Early spring plants which are perennials. Excursions to find and dig up these rootstocks. Rhubarb and horse-radish in gardens. Study in class of the rootstocks. Where do these plants flourish best?

(*b*) Trace the growth of these plants during the spring season to flower and fruit so far as possible.

(*c*) Contrast these plants with the annuals. Continue into the fall.

3. *The orchard and bush fruits.* (*a*) Peaches and plum trees. Planting and raising of seedlings. Buds and blossoms. Frosts. Development of young fruit. Visits of insects to flowers.

(*b*) Blackberry and raspberry. Propagation. Roots and underground stems. Young shoots and old stalks. Blossoming and fruit. Young plants, how started.

(*c*) Garden weeds. Milkweed. Underground stem. Other weeds and their roots.

References.

Weeds and How to Kill Them. Farmers' Bulletin, No. 28.

The Peach-tree Borer. Farmers' Bulletin, No. 80.

The Nursery Book (Bailey).

Garden Making (Bailey).

4. *Birds of the orchard and garden.* (*a*) The mourning dove; nest. The blue jay; habits, food. The humming-bird; honeysuckle, trumpet-vine, columbine. Wren, chickadee, bluebird, woodpecker. Baltimore oriole; nest. The scarlet tanager. Yellow warbler. Rose-breasted grosbeak.

(*b*) Making of bird-houses for different birds. Bird enemies: snakes, cats, and owls.

(*c*) The insects — plant lice, caterpillars, borers — and seeds and fruits devoured by the birds. Quarrels among the birds.

References.

Animal Memoirs. Part II, Birds (Lockwood).
Everyday Birds (Torrey).
Some Common Birds. Farmers' Bulletin, No. 54.
The Birds and I. Cornell Teachers' Leaflets, No. 10 (Bailey).

5. *Shade trees.* (*a*) The maple. Early buds, blossoms, winged seeds, and leaves. Flow of sap. Sugar-making.

(*b*) The oak. Long-hanging catkins, small green buds of pistillate flowers. Growth of the acorns. Sprouting of old acorns in the soil. Leaves.

(*c*) The birch. Its peculiar bark. Catkins.

(*d*) Catalpa and honey locust. Blossoms and leaves of special interest. Study the same trees again in the fall.

References.

Familiar Trees and their Leaves (Mathews).
The Common Trees (Stokes).
Trees of the Northern United States (Apgar).
Guide to the Trees (Lounsberry).

6. *The lawn.* (*a*) Making a lawn. Sowing grass seed. Kinds of grasses. Blue grass. Clover.

(*b*) Weeds. Dandelion, plantain, wild grasses, crab grass, pigeon grass, ragweed, knotweed, chickweed.

(*c*) Watering the lawn. Plenty. The rain. The earthworm.

(*d*) The mole. Burrowing. Food and habits of the mole. Organs. Injury done by moles and means of prevention.

(*e*) Shrubbery: lilac, snowball, sumach, syringa, spirea, bridal-wreath, Japan quince, flowering almond, honeysuckle.

(*f*) Birds frequenting the lawn. Robin searching for earthworm and caterpillars. English sparrow. Dandelion heads.

References.

Garden Making. Suggestions for Utilizing Home Grounds (Bailey).

The Practical Garden Book (Bailey).

FALL TERM. — FOURTH GRADE

1. Continue plant studies of spring as follows: (*a*) maple, oak, birch, catalpa.

(*b*) Fruit trees and blackberry.

(*c*) Roots of dock, dandelion, sweet-clover, etc.

(*d*) Garden vegetables.

References.

The Vegetable Garden. Farmers' Bulletin, No. 94.

Guide to the Trees (Lounsberry).

Stories of the Trees (Mrs. Dyson).

The Common Trees (Stokes).

2. *The corn plant* (review previous studies). (*a*) Full stalk of field corn for study. Visit garden and corn-fields in September. The nodes and internodes on the stalk. Arrangement and uses of blades. The ear and its stalk. Arrangement of ears. Silk and tassel. Roots and the cultivation of corn. Soils and productiveness. The corn-worm; chinch-bug. Experiments in cultivating the corn plant. Rust and the effects of weather. History of corn plant among Indians and whites. Kinds of corn in common use.

(*b*) Grasses: timothy, blue grass. Resemblances to corn.

(*c*) Grains: wheat, oats, rye, barley.

References.

Corn Plants, their Uses and Ways (Sargent).

Principal Insect Enemies of Growing Wheat. Farmers' Bulletin, No. 132.

Agriculture for Beginners (Burkett, Storms, and Hill).

3. *Weeds of garden and field.* (*a*) Milkweed. Pods and seeds. Seed dispersal.

(*b*) Butter print (velvetweed); flowering and seed. Amarinth (pigweed).

(*c*) Cocklebur; vigor of the plant; seed production. Lamb's-quarters.

(*d*) Ragweed and purslane.

(*e*) Fox-tail grass; quick (quack) grass.

(*f*) Burdock; mullein in meadows and pastures.

(*g*) Bindweed or wild morning-glory. Difficulties in ridding fields of weeds because of abundance of seeds, scattering and distribution of seeds, tough hardy plants and roots.

(*h*) Birds as seed destroyers.

References.

Weeds and How to Kill Them. Farmers' Bulletin, No. 28.

Nature's Garden (Blanchan).

The Children's Garden (Bailey). Cornell Teachers' Leaflets.

Seed Dispersal (Beal).

4. *Kinds of rocks.* (*a*) Pebbles from the stream. History of the pebble. The boulder.

(*b*) Limestone. Marble. Fossils. Coral. Sandstone. Rindstone. Stratified rock.

(*c*) Quartz. Granite. Igneous rocks. Lava. Clays.

(*d*) Making of concrete walks.

(*e*) The decay of stones by weathering. Foundations of buildings. Monuments. Experiments with acids on stones. Formation of soils from rock decay. Rich and poor soils.

(*f*) Collections of specimens and grouping.

References.

How to Read a Pebble (Charles).

Town Geology (Kingsley).

About Pebbles (Hyatt).

Common Minerals and Rocks (Crosby).

5. *Common stars and constellations.* (*a*) Big dipper and north star. The stars as guides to sailors and travellers.

(*b*) Orion, Cassiopeia. The dog star. Pleiades. The apparent movement of the constellations at night.

(*c*) The planets. Jupiter. Venus. Changing position.

(*d*) The moon and its changes. Observation of the cycle of four weeks.

(*e*) The changes of position of the constellations with the seasons.

References.

Astronomy by Observation (Bowen).
The Story of the Stars (Chambers).
Unography. The Constellations Visible in the United States (Young).
Starland (Ball).
Familiar Talks on Astronomy (Parker).

6. *The larger birds.* (*a*) Owl, food, eyes, claws, night habits. Relation to other birds and animals.

(*b*) Hawk. Kinds of hawks and their prey; chicken hawks; fishhawks.

(*c*) The eagle. Its nesting places. Its power of flight and strength. Food. The eagle as a national emblem.

(*d*) The buzzard. A scavenger. Laws protecting it.

References.

Citizen Bird (Wright and Coues).
The First Book of Birds (Miller).
Neighbors with Wings and Fins (Johonnot).
Birds of the United States (Apgar).

7. *Cleanliness in kitchen.* (*a*) A model kitchen and pantry. The chemistry of cleaning. Utensils. Solvents of grease.

(*b*) Flies. Means of ridding the kitchen of them, — screens, poison paper, etc. The breeding places. Cleanliness in back yard. Danger of flies in dining room and kitchen. Their feet as means of carrying germs.

(*c*) The sink. Construction and how kept clean. Soap, sapolio. The trap and its uses. Disinfectants. How used.

(*d*) The mould on bread and fruit.

(*e*) Soap. The uses of soap. The making of soap. Its ingredients.

References.

The Chemistry of Cleaning and Cooking (Richards and Elliott).
Handbook of Household Science (Youmans).
Domestic Science in Elementary Schools (Wilson).

WINTER TERM. — FOURTH GRADE

1. *Common tools and inventions.* (*a*) The crowbar. The lever and its uses.

(*b*) The plane. Planing machines, machines for planing wood and iron.

(*c*) The screw. The jack-screw, various uses. Work bench.

(*d*) The wheel and axle. Axle grease and friction.

(*e*) Rope and pulley. Uses in barns and warehouses.

(*f*) The steel in edged tools. Grindstone. Ideas involved in chest of tools.

(*g*) The life preserver. Materials. Specific gravity of water, wood, cork, etc.

(*h*) The derrick and its construction and use. Observe in quarries and shops.

(*i*) The turning lathe and its uses.

References.

Text-books in Physics.

Experimental Science (Hopkins).

2. *Water in its various forms and uses.* (*a*) Uses of common water to plants, animals, and man.

(*b*) Steam and its nature. Uses. Steam for power, cooking, heating, etc. Evaporation.

(*c*) Ice. Effects of freezing. Uses of ice. Snow, sleet.

(*d*) Water as a solvent.

(*e*) Sources of pure drinking water. Causes of impurity and disease. Filtering; distilling.

(*f*) Mineral springs. Rivers. The ocean.

(*g*) Water vapor in the air. Rain, snow, etc.

References.

Popular Readings in Science (Gall and Robertson).

On Forms of Water (Tyndall).

Municipal Engineering and Sanitation (Baker).

3. *The skin and its uses to the body.* (*a*) Structure and parts of the skin. The pores. Perspiration.

(*b*) Keeping the pores open by exercise, by rubbing.

(*c*) Bathing. The office of the skin. Effects of cold and hot bathing.

(*d*) Sudden changes. Colds and catarrhs.

References.

Our Bodies and How We Live (Blaisdell).

Graded Lessons in Hygiene (Krohn).

Text-books in Physiology and Hygiene.

4. *The metals.* (*a*) The common metals. Collect specimens of metals and crude ores.

(*b*) Lead. Melting and moulding of lead. Its various uses due to its qualities. Lead poisoning.

(*c*) Iron and its qualities. Reduction of ores. Steel and its qualities. The simple magnet. Modes of making steel.

(*d*) Gold and silver. Smelting of ores. Use of quicksilver. Value of chemistry in the reduction of ores.

(*e*) Copper. Tin and zinc.

(*f*) Aluminum. Its source from clay and uses.

References.

Economic Geology of the United States (Tarr).
Text-book of Mineralogy (Dana).

5. *Trees in winter.* (*a*) Effects of cold upon trees. Barren appearance. Frost in the fall, nipping and shrivelling some leaves, as catalpa. Killing of the long, tender shoots of the willow, box elder, and other trees by cold. Killing of fruit trees and even forest trees by extreme cold. The breaking of boughs by sleet and snow. The uprooting of trees by storms.

(*b*) The buds in winter time. The buds wrapped to protect against sudden changes.

(*c*) Preparation of the buds in February and March for coming spring. The sap in trees in spring.

References.

How Trees Look in Winter (Bailey). Cornell Teachers' Leaflets, No. 12.
First Book of Forestry (Roth).
Hutchinson's Study of Trees in Winter.

6. *Budding and grafting of fruit trees.* (*a*) Study of twigs to note yearly growth. Leaf buds. Apple, pear, peach.

(*b*) Difference between seedlings and grafted or budded fruits. The process of grafting and budding as seen in a nursery.

(*c*) New varieties of fruit obtained from seedlings. The development of choice varieties by selection and cultivation.

References.

The Apple and How to Grow it. Farmers' Bulletin, No. 113.

Nature Study and Life (Hodge).

The Nursery Book (Bailey).

7. *Temperance in eating and drinking.* (*a*) Healthful foods and moderation in eating.

(*b*) Bad effects of alcoholic drinks.

(*c*) The uses of milk.

(*d*) Tea and coffee.

References.

Applied Physiology (Overton).

How to Keep Well (Blaisdell).

Physiology and Hygiene (Hutchinson).

SPRING TERM. — FOURTH GRADE

1. *Wild spring flowers in the woods.* (*a*) A calendar of the spring flowers. Time and place of first appearance.

(*b*) Spring beauty, water leaf violets, mandrake, Solomon's seal, trillium, the ferns, wild geranium. Dependence of forest plants on shade and protection of trees.

(*c*) Transfer of plants to the school and home garden. Soils suited to various plants. Flower garden. Leaf mould and soil.

(*d*) Care against waste and destruction of wild plants.

References.

Nature Study by Months (Boyden).

2. *Tree study in early spring (April).* (*a*) Excursions into the woods. Recognition of trees by size, outline, framework, bark, and buds. Colors and marking of stems. Size of buds on hickory, cottonwood, elm, maple, etc.

(*b*) Collection of specimens of buds, bark, and of sections of wood.

(*c*) Drawings of framework and branching of trees.

References.

How Trees Look in Winter. Cornell Teachers' Leaflets, No. 12.

Hutchinson's Study of Trees in Winter.

3. *The tame duck and goose.* (*a*) The duck pond. Swimming and diving of the ducks. The uses of their feet, bill, feathers, eyes. The waddling of ducks on land. Food and care of ducks in winter. Nesting places and hatching. Young ducks. Value of ducks as poultry.

(*b*) The goose. Feeding in the meadows and in water. Size and value of the eggs. Use of the feathers. Compare with the duck. ' Compare with the chicken.

References.

Ducks and Geese. Farmers' Bulletin, No. 64.

4. *Poisonous plants in the woods.* (*a*) Kinds of poisonous plants in the woods: poison ivy, poison oak, poison hemlock, poison sumach. The effect of this poisoning upon the skin and mode of treatment.

(*b*) Mushroom. Difficulty of distinguishing between the edible and poisonous kinds.

(*c*) Choke-cherry, buckeye, wild parsnip.

(*d*) Nettles, smartweed.

References.

Thirty Poisonous Plants. Farmers' Bulletin, No. 86.

Nature Study and Life (Hodge).

Mushrooms (Gibson).

5. *The care of chickens in spring* (by children). (*a*) Observe and care for hens and chickens in springtime. Their enjoyment of the warm spring sun. The dust bath. Crowing, cackling. Hunting for worms and insects in the yard and in the fresh-ploughed garden. The nesting and setting of hens. Time needed for hatching. Hatching out of chicks. The chicken-coop. Care and protection of the mother hen for her chicks. Scratching for food. Danger to chicks from rats, hawks, cats, etc. Feeding the hen and young chicks. Water. Rainy weather. Review of feet, bill, feathers, crop, gizzard, wings.

(*b*) The pigeons and the pigeon-house. Cooing. Hatching and feeding of young. The food, flight, and habits of pigeons.

References.

Fowls: Care and Feeding. Farmers' Bulletin, No. 41.

Standard Varieties of Chickens. Farmers' Bulletin, No. 51.

Squab Raising. Farmers' Bulletin, No. 177.

6. *The meadow flowers.* (*a*) The grasses: timothy, blue grass. The blossom and seeds. Their value to farmers and for lawns. The white and red clover. Roots of clover and value to the soil. Bees and honey in clover.

(*b*) The meadow rue, primrose, fleabane, meadow lily, purple cone flower, buttercup, marsh marigold.

(*c*) Wild rose; study of the blossom; compare with cultivated roses.

References.

The Corn Plants: their Uses and Ways of Life (Sargent).

Ten New England Blossoms (Weed).

7. *A clean cellar.* (*a*) The proper drainage of the cellar and cellar walls. Cementing walls. Orderliness.

(*b*) Cement floors. Washing and cleaning and drainage of floors.

(*c*) Vegetable cellar. Decaying fruits and vegetables.

(*d*) The laundry tubs and wash water.

(*e*) Ventilation and drying out of cellar at intervals.

(*f*) Dust, paper, rags, and rubbish. Ashes, coal-dust.

(*g*) Rats and mice; traps.

(*h*) Whitewash and disinfectants.

A full list of books for reference both by pupils and teachers is given in the "Special Method in Elementary Science."

ARITHMETIC

In the following course of study, on the basis of previous discussions, in the "Special Method in Arithmetic," the controlling ideas in the selection and arrangement of topics may be briefly stated thus: —

1. Regular number study is omitted from the first school year, there being an incidental cultivation of number ideas in connection with class and school management and other studies and games.

2. Emphasis is placed upon illustrative devices and measurement with standard units in the introductory treatment of all topics.

3. Oral work is made very prominent throughout the whole course.

4. The course of study is much simplified (*a*) by the omission of obsolete topics and those not needed in modern life; (*b*) by getting rid of over-difficult and complicated problems in all subjects.

5. Constant and thorough reviews are aimed at, and attention is called repeatedly to the inner connection, the underlying continuity, based upon similar ideas and processes, in the leading topics of arithmetic.

6. Clear and correct language and accurate written forms of operation are steadily urged and provided for; but elaborate formal analyses are to be avoided. The necessary simple definitions are illustrated and memorized.

7. Many important topics of geography, science, and history require arithmetical interpretation. The regular quantitative study of these topics is included in the course.

8. The natural overlapping of algebra and geometry upon arithmetic is recognized and made use of only so far as it aids the arithmetical purpose.

9. Thorough mastery of the elementary processes of arithmetic is the fundamental requirement, and the application of these processes to the whole range of knowledge as it gradually comes into view gives the function of arithmetic in the entire school course.

FIRST GRADE. — INCIDENTAL NUMBER WORK

In our course of study we have made no provision for regular number work in the first school year. Our presumption is that it is better for children of this age to gather number experience incidentally from home and school employments. The regular and systematic drill on number combinations in the first year seems to us premature, and the time thus spent can be better employed in widening a child's experiences in nature and in human affairs. With this accumulation of experiences, and with the

greater maturity, children may grapple with number more effectively the second year.

The recent widening of the activities of primary children into nature study, school games, literature, drawing, and constructive arts gives a much richer number experience in the first year.

By incidental number work it is meant that where quantitative relations are present, enough attention shall be given to them to make the ideas clear. This is desirable even from the standpoint of nature study, of stories, and of constructive exercises, etc. But this can be easily overdone. It is not our aim to make construction or weather study merely a vehicle for bringing out number relations. The idea is to let number ideas grow naturally, and not to force them.

The following outline indicates a few of the instances where number appears and can receive this incidental attention: —

1. The number of children in the school and in different classes. The relative number of boys and girls. The school enrolment and number in attendance. Absences and tardiness.

2. Distributing and collecting materials for class use, as pencils, books, pens, blotters. A monitor for each row can report the number needed for use in his row.

3. Numbering of children at the board or at the seats. Number of seats in each row or of places at the blackboard.

4. Observe and read the paging of the primer and first reader. Notice number symbols wherever used in any of the studies.

5. In connection with weather study, note clear and cloudy days with colored circles, and work out the record for the week and month. Make a diagram of the thermometer on the board and on paper, and read the markings.

6. In making the clock face, reckon up the hours and minutes. Number of days in the week and month.

7. In the observation of plants and animals, number facts are often of interest, as the number of seeds in pods or parts in flowers, of legs, wings, and other organs in animals.

8. Measuring inches with the foot-rule in constructing seed boxes, play and doll houses, envelopes, and in paper folding, cardboard work, etc.

9. Games which involve counting, such as tenpins, marbles, dominos, card games, and any game where a score is kept.

10. Measuring the size of children, calculating ages of children, years and months.

11. Children take pleasure in counting by 1's, 2's, 10's, and 5's, and occasionally attention should be given it.

12. There are many cases where the fractions, halves, thirds, quarters, are used and may require explanation and illustration.

13. Even fables, fairy tales, and myths often bring out number facts.

Professor N. D. Gilbert has worked out more fully this idea under the head of Related Number Work, upon which the above outline is largely based. See catalogue of Northern Illinois State Normal School, De Kalb, Illinois, pp. 58 and 59.

SECOND GRADE

1. Continuation of the incidental number work of the first year, connected with schoolroom management, nature study, manual construction, keeping score in games, counting size and age of children, distance of walks and journeys, garden making, and mathematical games.

2. Complete study of the number space from 1 to 20 by addition and subtraction. Counting by 1's, by 2's, by 10's, and by 5's to 100.

Use common objects about school, home, and neighborhood for counting, as window-panes, chairs, orchard trees, etc.

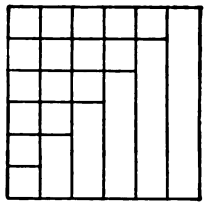
Notice close connection between 5's and 10's, also between 1's and 10's; *e.g.* each pair of 5's equals one 10.

The multiplication series should come later in the year, after the additions have become familiar.

3. Build up the different series from 1 to 10 with inch cubes, and blocks of all lengths from 1 to 10 in. (parallelepipeds 1 in. square at the ends)

For example, work out the series based on the number 6, thus: —

$1 + 5 = 6$ $\quad$ $4 + 2 = 6$
$2 + 4 = 6$ $\quad$ $5 + 1 = 6$
$3 + 3 = 6$



Tear down the blocks, also giving the corresponding subtraction series: —

$6 - 1 = 5$ $\quad$ $6 - 4 = 2$
$6 - 2 = 4$ $\quad$ $6 - 5 = 1$
$6 - 3 = 3$ $\quad$ $6 - 6 = 0$

Form similar series with 3, 4, 5, 7, 8, and 9. The individual additions and subtractions can be drilled upon in irregular order after the series have been formed and learned.

The blocks may be used also (the 2-in., the 3-in., etc.) in building by 2's, 3's, 4's, etc., thus leading up to the multiplication table. For the full treatment of the number 7, see chapter of Illustrative Lessons in "Special Method in Arithmetic."

4. In board work by teacher and pupils the number picture, the name, and the figure (symbol) should be written in the same line, as follows, so as to show the "one-to-one correspondence" of these forms of expression; *e.g.* ⁘, five, 5. ⁙, nine, 9.

The number pictures may also be used at first by the children in writing at the board;

as, ⁘ + ⁚ = ⁙, ⁚ − ⁚ = ⁚, etc.

These exercises give good seat and board work for a short time. Squares, lines, and circles can be used also for number pictures.

With splints or toothpicks let the children lay out the simple geometric forms, as triangles, squares, and rectangles. Also cut out these forms from paper or cardboard and notice the number and relation of sides. Count the faces of cubes and blocks and base simple problems upon the counting of faces, edges, and corners.

5. Make use of the standard units of compound numbers; as pint, quart, gallon, for measuring liquids; foot and yard measurements to twenty feet; dime, cent, and dollar, for measuring values.

Use simple fractions in working with these units; as, $\frac{1}{2}$ (pint and quart), $\frac{1}{4}$ (quart and gallon), $\frac{1}{3}$ (foot and yard), $\frac{1}{10}$ (cent and dime).

Study of the clock face, and counting by 5's, 10's, 15's, and 30's.

6. Write and use the Arabic figures as they are needed in expressing operations at the board or on paper. Use the signs +, −, =, ×, and ÷ as clear occasion for their use arises.

Learn the Roman numerals to XII, so as to read the time on the clock face.

7. As the mind puts number relations into objects

in preference to drawing them from objects, the abstract conception of number develops gradually. In second grade, after the preliminary object work and measurements have laid the basis for clear number ideas, there can be much quick oral work in adding and subtracting of pure numbers, as $3 + 4 = ?$ But whenever the number relations seem blurred, there should be a quick and constant resort to illustrative materials.

8. Every primary school should be well equipped with mathematical apparatus, such as the standard units of liquid and dry measure, quart, pint, and gallon, peck and bushel; also the foot and yardstick, simple scales, clock face, splints or toothpicks, abacus, measured blocks (a full set of 100 cubic inches, ten blocks of each length, 2 in., 3 in., 4 in., 5 in., 6 in., 7 in., 8 in., 9 in., and 10 in.), real or imitation money, good blackboards.

These artificial units are not designed to take the place of other familiar objects, nor is it at all desirable to overload the children with a multiplicity of such materials. But different materials are used for different purposes and there should be a sufficient variety of constructive measurements so as to meet the requirements of early number work. The standard measures are the best units of measurement.

ADDITIONAL EXPLANATORY REMARKS

1. In both first and second grade children should be allowed full physical activity in measuring with standard units.

Let them also step off distances, play counting games, build with measured blocks, make number pictures at the board or on paper, measure for paper folding and cutting, and write out short statements with figures and symbols.

The abacus or number frame and the splints should be handled by the children.

The purpose of all this is to see that children by the aid of sense perception and motor activity image clearly the objects and groups whose measurements suggest number relations.

2. Let correct language be used in describing number operations. Extreme formality in language should give way to brevity and accuracy in describing what is already clearly grasped. Over-formality not only gives an unnecessary mental strain but also cultivates a memory of words and phrases that often deceives with an appearance of knowledge.

3. In early number work there should be an emphasis of counting and of addition and subtraction series formed by counting.

The addition and subtraction should precede by some interval the multiplication and division series. Let the notions of multiplication and division grow

and ripen gradually. It is easy to carry the memory process beyond the ideas of the children.

THIRD GRADE

1. Complete review and mastery of the number space from 1 to 20, including multiplication and division.

In treating numbers from 1 to 20, form addition and subtraction series as follows: —

7	7	7	7	7	7	7	and other similar
4	5	6	7	8	9	10	additions.
11	12	13	14	15	16	17	

18	17	16	15	14	13	12	and similar
8	8	8	8	8	8	8	subtractions.
10	9	8	7	6	5	4	

Follow these with drills in broken series and mixed combinations.

2. Count to 100 by 2's, 4's, 8's, by 3's, 6's, 9's, and by 7's. Notice the similarity of corresponding series, as 2's, 4's, and 8's; 3's, 6's, and 9's.

2's, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40
4's, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
8's, 8, 16, 24, 32, 40

3's, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54
6's, 6, 12, 18, 24, 30, 36, 42, 48, 54
9's, 9, 18, 27, 36, 45, 54

See complete treatment of 2's and 4's in the chapter of Illustrative Lessons in "Special Method in Arithmetic."

Follow these series with the multiplication tables in the same easy order, 5's, 2's, 4's, 8's, 3's, 6's, 9's, and 7's. Then break up the multiplication tables and drill in irregular order.

At first and where necessary illustrate with abacus and splints.

3. In the number space between 1 and 100 form such series as the following: —

8	18	28	38	48	58	68	78	88	98
4	4	4	4	4	4	4	4	4	4
4	14	24	34	44	54	64	74	84	94

Form similar addition series.

Drill upon many such addition and subtraction series.

4. Teach and illustrate the decimal scale by the use of splints or toothpicks, forming bundles of 10's, 100's, bound with rubber bands. See chapter of Illustrative Lessons in "Special Method in Arithmetic" for a full treatment of the decimal scale.

Illustrate addition and subtraction of three-place numbers by breaking up these bundles. Also multiplication and division. The abacus or number frame may also assist to explain the decimal scale. Pennies, dimes, and dollars will also help to illustrate

the same and give an easy transition to the larger numbers.

5. Train children in reading and writing numbers in units' and thousands' period, as 425,048, and 607,040, etc. Require carefulness in the use of correct language and neatness in board and paper work, making figures large and plain. See that children image the numbers clearly before writing, and memorize the number of each order.

6. *Compound Numbers.*

Review and use the standard units of the second year. Introduce the *pound*, *ounce*, and *ton* (small scales); *quart* and *peck* of dry measure (keep these measures at hand); *minute*, *hour*, *day*, and *month* (clock face and calendar); *square inch*, *square foot*, *acre*, and *square mile*. Measure often with available standard units. Measure and work out the areas of rectangles, rooms, plots of ground, city lots, gardens. Use the foot-rule marked with inches. Get the fractional parts of the foot, as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{2}{3}$, $\frac{3}{4}$, etc.

7. Teach addition and subtraction of two- and three-place numbers. First, illustrate with concrete examples. After preliminary illustrative work, use the following for drill exercises: —

(*a*) Addition:	634	375	Subtraction:	794	937
	225	423		462	624

(*b*) Addition:	537	928	Subtraction:	637	829
	264	469		486	764

8. Give daily short oral drills to secure accuracy and speed in addition, subtraction, multiplication, and division. Do not be too quick, but allow slower children time to think.

9. In written exercises for board and seat work be strictly accurate in the use of signs of operation, *e.g.* $6+4\times3=18$, not 30; $8-3\times2=2$, not 10. Errors at this point are very common, both with teachers and pupils.

10. Use the text-book for drill exercises in abstract number work in addition, subtraction, multiplication, and division, at the seat and at the blackboard.

11. The home geography of this year gives great variety of topics for applied number measurements, etc., *e.g. house building*, in measuring basement excavations, rooms, quantities of shingles, boards, brick, stone, sand, nails, paint, etc.

The Garden. — Measuring of spaces, planting of vegetables, yield per acre, price of vegetables, fruit, grain, corn, hay, etc.

The Dairy. — Butter, cheese, milk, cost of keeping horses and cows.

Local Map-making. — Familiar distances measured, making a map to a scale with foot-rule.

Bakery. — Bread and cakes. Cost of flour per

barrel, number of loaves per barrel, and price. Measurements in cooking; size and capacity of baker's oven.

Height of hills, towers, steeples, public buildings, cost of the same.

Transportation. — Drays, wagons and their capacity, wood, coal, lumber, stone, and sand hauled in wagons. Capacity of cars and boats in tons, cattle, hogs, sheep, etc.

Grocery Store. — Selling price of vegetables, canned fruits, sugar, coffee, etc. The family account at the grocery store furnishes a variety of good problems. See chapter of Illustrative Lessons.

Factories, local shops, and industries offer many excellent practical problems, which throw light upon these occupations.

12. *The Science Lessons.*

Reading of thermometer, the sun-dial; length of day and night, variations in the seasons. Seed production in pods; age and size of annuals, perennials, and trees. Regular number of certain parts and organs in plants and animals, as petals, leaves, legs, feathers, fins, etc.

13. *Number Games.*

Tenpins, marbles, dominos, card games, arithmetical games, counting-out games. The score at tennis, baseball, golf, and other games.

Distances run or jumped in field-day sports. Races and speed.

FOURTH GRADE

1. Review of multiplication tables, also addition and subtraction tables by frequent oral drills.

2. Multiplication of two-place numbers by one-place numbers.

(*a*)	43	23	22
	2	3	4
	86	69	88
(*b*)	56	24	76
	3	5	8
	168	120	608

Multiplication with larger numbers.

25	67	96	428
32	32	87	623
50	134	672	1284
75	201	768	856
800	2144	8352	2568
			266,644

Review the decimal scale and illustrate, if necessary, with fuller analytic treatment of the process; *e.g.* $32 \times 25 = 2 \times 25 + 30 \times 25 = 50 + 750 = 800$.

3. *Compound Numbers.*

Table of linear measure (use yardstick and tape line in frequent measurements).

Table of avoirdupois weight (examine and test larger scales).

Table of liquid measure (barrel, cask, hogshead).

Table of square measure (measuring and reckoning of areas of fields, surfaces, yards, etc.).

Dry measure (measurement of apples, potatoes, etc.). (Now often measured by weight.)

Table of United States money (reading and writing).

A brief historical study of the origin and use of the standard units, as yard, pound, gallon, and dollar, is instructive (see cyclopædias).

4. *Short Division.*

(*a*)	3)9	2)14	5)20	6)18
	3	7	4	3
(*b*)	4)19	5)18	9)16	6)32
	4—3	3—3	1—7	5—2
(*c*)	2)64	3)96	4)84	5)1050
	32	32	21	210
(*d*)	5)95	4)76	6)72	8)96
	19	19	12	12
(*e*)	4)824	5)725	8)744	7)686
	206	145	93	98

5. *Fractions.*

Simple fractions expressing the relation of standard units, as inch to foot, ounce to pound, pounds to ton.

By paper folding show that $\frac{1}{2} = \frac{2}{4}$, $\frac{1}{3} = \frac{2}{6}$, $\frac{3}{4} = \frac{6}{8}$, $\frac{1}{6} = \frac{2}{12}$, etc. Show by paper folding that $\frac{2}{3}$ and $\frac{3}{4}$ can be changed to twelfths and added.

Explain the reduction of fractions to lower terms and *vice versa.*

In United States money notice the fractional parts of one dollar, as $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{20}$, $\frac{1}{8}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{1}{6}$.

$16 = \frac{2}{3}$ of what? $750 = \frac{3}{4}$ of what? $96 = \frac{8}{9}$ of what?

6. Reading and writing of numbers to 1,000,000,000. Learn well the periods and orders.

Image clearly the numbers before writing. Give vigorous class drills at the board in writing numbers.

7. *Long Division.*

(*a*) Show the transition from short division to long division, *e.g.:* —

$$\begin{array}{r} 65 \\ 5\overline{)325} \\ \underline{30} \\ 25 \end{array} \qquad \begin{array}{r} 16446 \\ 4\overline{)65784} \\ \underline{4} \\ 25 \\ \underline{24} \\ 17 \\ \underline{16} \\ 18 \\ \underline{16} \\ 24 \\ \underline{24} \end{array}$$

(*b*) Long division by 12, 13, 14, 15, etc., to 20.

(*c*) Division by two- and three-place numbers.

By 30, 40, 50, 60, 70, 31, 41, 39, 49; by 36, 73, 86, 94, 324, 860, 940, etc.

See chapter on Method in Intermediate Grades, in "Special Method in Arithmetic," for a fuller treatment of long division.

Discriminate between measurement and partition; *e.g.* How many yards in 630 ft.? What is $\frac{1}{5}$ of $250? Show that in measurement the divisor and dividend are of the same denomination, but in partition the divisor is abstract. Work out many illustrations of the same.

8. Provide 100 or more inch cubes. Build up cubes and rectangular solids, and let the children work out mentally the solid contents and the superficial areas.

9. Daily oral work in the review of tables, changing to higher or lower units of compound numbers. Addition and subtraction of simple fractions by changing to a common denominator.

10. Teach the meaning and use of minuend, subtrahend, multiplicand, multiplier, product, dividend, quotient. Make definitions simple.

11. Avoid common errors, such as:—

$\$15 \div 5 = \$3$. 25 ft. $\times$ 3 ft. = 75 sq. ft.

Multiplying the length by the breadth does not give the area. Multiplying together length, breadth, and height does not give the solid contents. Give the correct analysis of these processes; *e.g.* if a floor is 16 ft. long by 14 ft. wide, how many square feet in it?

If the floor were 16 ft. long and 1 ft. wide, it

would evidently contain 16 sq. ft., but since it is 16 ft. long and 14 ft. wide, it contains 14 rows of such square feet, or 14 × 16 sq. ft., which equal 224 sq. ft.

12. Processes applied to other studies and to practical affairs.

(*a*) *Continuation of Home Geography Topics.*

Cost per mile of good country roads; cost of local waterworks and running expense; the heating of homes and schoolhouses, expenses for furnaces, coal, wood, janitor or engineer.

The outlay in running a local mill or factory, for machinery, wages, insurance, repairs, raw materials, and losses.

Population of the town; school population; number of voters. Population of city and country compared for the county.

Length of chief railroad lines within the state. Time and rate of speed for passenger trains. Cost of tickets for certain distances, between cities.

Trip around the world on the home parallel, marking and comparing distances.

Capital needed in sinking a coal shaft and for machinery and labor in operating a coal mine.

Other similar topics in geography.

(*b*) *Elementary Science.*

Quantity of weed seeds destroyed by birds.

Distance to the sun and moon and size of each.

Diameter and circumference of the earth.

Power gained by the crowbar, pulley, and rope.

Power of engines, windmills, and water-wheels.

Comparative weight and value of different metals.

Amount of money wasted in alcoholic drinks and tobacco.

The age of plants and trees.

(*c*) *History.*

Length of chief periods in American history. Chief periods of the world's history; time before and since the birth of Christ. Important dates.

Age of cities and buildings; monuments.

Age of the oldest citizens; oldest houses in the town. Centennial and other celebrations.

THE HANDBOOK

THE following Handbook was worked out from the experiences met in the Practice Department of a Normal School. It still retains some of the peculiarities of that environment.

It is inserted here at the close of the course of study because it may be convenient for principals and supervisors to have in the hands of all teachers a brief summary of leading points, both theoretical and practical. These points are daily arising in the school, and may be discussed in teachers' meetings in connection with other problems of the school course.

A HANDBOOK OF PRACTICAL SUGGESTIONS FOR SCHOOLROOM WORK

DISCIPLINE

1. Few and quiet signals are indicative of strength in discipline.

2. Cultivate firmness and decision with gentleness.

3. Do not forget and neglect your own requirements.

4. In cases of difficult management take counsel with the principal, but control the room yourself.

5. Competing with children in smartness is unworthy of a teacher.

6. Be not suspicious and hasty in attributing fault to a child.

7. Assume full responsibility for the class in all respects. Depend on the critic teacher or principal only for outside advice.

8. In exercising discipline use the direct appeal to the principal very seldom. Employ your own tact and invention to meet the emergency. Children respect a teacher who relies on himself.

9. Self-reliance can be strengthened by preparation, will effort, and experience.

10. Be fair-minded and just.

11. Secure the respect of children by honest dealing.

12. Keeping children after school to learn lessons as a means of punishment is poor policy. But let them do their tasks.

13. Have pupils pass through the halls quietly, promptly, and in line.

14. Use your eyes. See what is going on in the room.

15. Avoid scolding and censuring in the class and before the school. In general reprove privately and make it effective.

16. Do not worry over little noises and disturbances if the children are working heartily.

PLAN AND PREPARATION

1. On the back of the plan-book write your name, the term of the year, grade of the class, and subject (for pupil teachers).

2. In planning a lesson, keep both the children and the subject-matter clearly in mind.

3. Each lesson should have a distinct aim, which brings the topics into a natural sequence.

4. The aim should touch the central point of the lesson, approach it from a familiar side, and should be simple and concrete in its statement.

5. A well-planned lesson gives greater freedom for happy inspirations of the moment. Abundant and clear knowledge of the subject is the teacher's best reserve.

6. Have all apparatus — as maps, charts, blocks, pictures, abacus, chalk, board work — ready before the recitation begins.

7. Mental and physical freshness are so important as to deserve special precaution.

8. Learn to make plans which can be carried out.

9. In case of absence, send written notice in time and send also the plan-book so that the substitute may know just where to take up the lesson (for pupil teachers).

ASSIGNING LESSONS

1. To assign a lesson well is a difficult and critical task.

2. Take sufficient time before the end of the period to assign lessons. Five minutes is often insufficient.

3. The aim and first step are often included in the assignment.

4. Be simple and explicit, avoiding all uncertainty.

5. Preparation for the assignment is as important as for the recitation.

6. Create an interest in the new lesson by the manner of assigning it.

7. In using reference books do not work at random. Point out to the children exactly, by volume and page, what they are expected to look for and prepare.

8. Assign short lessons, but insist on thorough mastery.

9. Call to mind previous topics and principles which may be of service in studying the new lesson.

ART OF QUESTIONING

1. It is a difficult art, acquired by preparation, presence of mind, and afterthought.

2. Think twice before asking a question. Do not vary, modify, and correct questions.

3. Make one question go as far as possible. Questions should produce thoughtfulness and reasoning.

4. Questions designed to test knowledge acquired should not be helps to the pupil.

5. The honest questions of children should be respected. But many children abuse their privilege and should be checked.

6. General, indefinite questions are often blind. Most questions should be specific.

7. Do not waste time in guessing, in questions which children cannot answer.

SECURING AND HOLDING THE ATTENTION

1. To strengthen the habit of attentiveness in children should be a fundamental aim of the teacher. Teachers are too careless about holding the attention of the whole class.

2. Involuntary attention depends upon interest in the subject. Voluntary attention depends, first, upon the will of the teacher; secondly, upon the will of the pupil.

3. The position of teacher and pupils should aid attention.

4. Recess and gymnastic exercises between the periods are a direct support to attention.

5. A pure text-book method is unfavorable to attention.

6. Laxity of attention is a striking weakness of our schools. In oral recitations, where no text-book is used, everything depends upon attentiveness. The habit of inattention, cultivated in the class room, repeats and strengthens itself in the home studies of children.

7. Good work of any kind may not be had by merely asking for it, but by insistence.

8. Provide for good variety of work during a recitation.

9. Weak control and weak instruction leave a class in the condition of an unstrung violin. No response can be elicited.

INSTRUCTION

1. The teacher is a guide rather than a lecturer.

2. Few teachers realize what it is to treat subjects *concretely* and *inductively*. Most text-books are abstract rather than concrete, deductive rather than inductive, and teachers must make good these deficiencies. A teacher should be full of resources, devices, and information. Fertility in device, in illustration, in graphic drawing, should be a professional characteristic. From your own resources, add vividness and reality to the contents of the text-book. Study home surroundings and experience as a means of illustration. Have children do the same.

3. Study the general plan and purpose of your text-book.

4. Loud and persistent talking by a teacher is a bad sign. A teacher should be laconic and the master of his tongue. The more a teacher is habituated to talking, the less the pupils think.

5. As a rule do not explain what some member of the class can explain.

6. Require pupils usually to reproduce facts and explanations given by the teacher.

7. On the other hand, a teacher should talk to the best effect when occasion requires. In the oral presentation of a new lesson to a class, the teacher should cultivate a special skill and vividness in narration and description.

8. Strictly oral lessons in natural science, literature, history-stories, and geography require a very clear and logical *outline of points* for each lesson. It should be put on the board by the teacher during the recitation and each part should be carefully reproduced by the children. The outline should be copied also into blank-books in ink, as the basis of future reviews.

10. In general do not tell the class anything which is not worth reproducing during the same lesson or the next by the children.

BOARD WORK

1. There is always a temptation for teachers to be hasty and careless in board work done before the class. Such work should be plain and neat. Overcome the spirit of hurry and flurry.

2. Keep the boards free from careless and unnecessary marks. Each teacher should leave the boards in good shape.

3. Copying lessons from the board should be avoided as much as possible.

4. Children should be kept strictly independent of one another in board work.

5. Let the board work of pupils be careful and thoughtful. Check the habit of erasing and rewriting.

6. One teacher should not monopolize board room with written work at the expense of others.

PERSONAL MANNER

1. Acquire self-control and confidence.

2. A sincere and hearty manner is very desirable.

3. Social tact is all important to a teacher.

4. Confidence in the pupils and sympathy for them encourage like feelings in them.

5. The easy and unostentatious habits of a gentleman are not acquired in a moment, but by close observation, thoughtfulness, and goodness of heart.

6. Awkward positions and motions should be studiously avoided.

7. Some of the best people have the most obnoxious faults and never find them out. Neatness of dress, clean teeth, and well-kept hands and fingernails have become standard requirements.

8. Do not get too close to the children in recitation work. They will speak, read, etc., with more force and independence at a little distance from the teacher. Do not fondle older pupils.

POSITION AND MANNERS OF CHILDREN

1. Let them sit and stand squarely, and talk clearly and forcibly.

2. The selfish prominence of some children in recitation should be checked, while the timid ones should be encouraged.

3. Children should be required to show a kindly and respectful manner to schoolmates as well as to teachers. The behavior of children should be as quiet and courteous in school as when visiting or receiving friends at home.

4. The room, desks, and floor should be kept as neat and orderly as the best room at home. Be very careful to avoid ink stains on desks and floors.

5. See that children's names are well written in all their books. Prevent scribbling in their books.

6. Scraps of paper should be kept from the floor and desks.

7. Be careful about excusing children from the room. Keep a record and report such cases to the room-teacher.

8. Do not waste paper or any materials furnished by the school.

9. Let children keep their hands clean and their person neat.

10. Written papers, handed in to a teacher, should be clean, with well-cut edges, and adequate in size for good work.

OBSERVATION AND CRITICISM OF OTHERS' TEACHING

1. Be able to discover quickly the strong and the weak points in others' teaching. Give reasons.

2. Find out beforehand the teacher's plan for the lesson.

3. Do not rely chiefly upon memory for the criticism of a lesson.

4. Our faults and merits are often seen magnified in the teaching of others. The suggestions thus derived may be very helpful.

5. Make your criticisms specific, and base them upon established principles. Be able to point out clearly the remedy.

6. Study the chapter on instruction.

7. Do not write up a great quantity of details, but give definite and pointed criticism.

SELF-CRITICISM

1. Bad habits or tendencies should be discovered and corrected at the beginning of experience in teaching.

2. Severe and effective self-criticism in teaching is wisdom.

3. Do not be offended easily at criticisms.

4. Do not think too much about yourself while teaching, but allow the interest in the lesson to carry you along vigorously.

5. Review your lessons thoughtfully and consider where you might have improved the plan or its execution.

6. Be reasonable in acknowledging your mistakes to children.

OBSERVATION OF CHILDREN

1. Some children need to be carefully studied by the teacher, because of their peculiar disposition.

2. A knowledge of the home surroundings and habits of a child may help the teacher to appreciate and sympathize with him.

3. Personal and kindly conversation with a child when school is not in session will often help both teacher and pupil.

4. The practice of making a close study of at least one child each term will give the teacher much suggestion and tact in treating other children.

5. Be careful to notice whether some children are poor of hearing, near-sighted, or weak physically in any way. Adapt conditions to such needs.

6. Observe children on the playground, on excursions, etc., where they express their disposition and their individuality more freely.

REPORTING CHILDREN

1. The study hour is the time when the room-teacher can attend to backward and deficient pupils, as well as assist all children reasonably in their allotted studies.

2. Each teacher of a class should daily interview those children who are negligent in their work or who, for any culpable reason, neglect the full performance of their duties.

The class-teacher should also report daily to the

room-teacher such special pupils as for neglect of their work need special attention during the study hours.

By looking at the list of names filed on his desk daily, the room-teacher may aid greatly in keeping each child up to the requirements.

PROMOTIONS

1. Pupils in a class, who are manifestly graded too high or too low for the class in which they recite, should be promptly reported to the critic teacher or principal.

2. Occasional promotions or reductions, if wisely made, have an excellent tonic effect.

3. A bright child sometimes does poor work in a class because the work is too easy for him. Promote him and lay heavier burdens upon him.

4. Consult with parents about promotions and be considerate of all the circumstances.

TEACHERS' RESPONSIBILITY FOR SUGGESTIONS IN THE HANDBOOK

1. Pupil teachers should make constant use of the Handbook and keep its injunctions and suggestions in mind. This is true especially at the beginning of the term.

2. Let practising teachers apply to the critic teachers for necessary desk-books, paper, and other materials. Report pupils promptly who are not supplied with text-books.

GENERAL SPIRIT IN A CLASS OR SCHOOLROOM

1. Let children learn to help each other in a kindly spirit.

2. Incidents in the room give opportunity to apply many lessons learned from books.

HOW TIME IS WASTED

1. In not having a well-defined plan of work. In not keeping clearly fixed goals in mind and pressing the work toward their accomplishment.

2. In lecturing too much about good order, behavior, rules, etc., and forgetting to execute promptly and steadily requirements previously made.

3. In not planning and executing promptly room and class movements. For lack of forethought in giving directions children become confused in taking places at the board or in passing and collecting materials, etc.

4. When good physical conditions are lacking. Time is frequently wasted in trying to teach children when they are sleepy, tired, or nervously unstrung. Monotony, tediousness, and too long-continued exertion waste time.

5. In not watching the whole class, but confining the attention to one, or a few reciting. Part of the class is inattentive to board or recitation work so that all must be done again for the sake of the delinquents

6. In scolding children.

7. In repeating answers.

8. In trying to teach the facts of a new lesson before the older related experience and knowledge have been refreshed.

9. In too much development work. In trying to develop many little things or side issues not essential to the main line of thought. In not discriminating between facts which need to be presented directly by the teacher and inferences. Definite facts and conditions must often be directly presented before inferences or questions are in place.

10. In indefinite questions, which lead the children to loose guessing. Often the meaning of a word is better explained by the teacher.

11. In trying to force an answer from a child when he is manifestly unable, or unwilling to give one.

12. In waiting too long for the poorest members of the class.

13. In criticising each other's work, children often waste time on trivial errors.

14. The teacher talks and explains too much.

15. In disputing with pupils.

16. In loose and unpremeditated assignment of lessons. Thus questions, disputes, and explanation arise.

17. Time is wasted during study periods: (1) because of lack of a definite program for certain lessons; (2) on account of indefinite and hasty assignments; (3) not keeping an eye on the children while at study.

THE MANUAL ARTS

The following course in Manual Arts was worked out by Oscar L. McMurry of the Chicago Normal School in conjunction with Frank M. McMurry and Charles A. McMurry. A full treatment of this subject for the common school will be given in a volume on the Manual Arts which is now in preparation by the authors named, and to be published by The Macmillan Company.

INTRODUCTORY THESES

In outlining the following course in the Manual Arts, the grounds upon which the selection and arrangement of topics are based may be stated in the following theses: —

1. Manual training has its own thought-content, consisting of a distinct body of ideas requiring elaboration. No other study deals primarily with the class of ideas peculiar to the manual arts. This content can be analyzed somewhat as follows: —

In any given unit of construction, as a chair or woven fabric, a clear conception must be gained of the plan or design of the whole, of the special modes of construction or fabrication involved, of the nature and adaptation of material to be used, and of the necessary tools and their purpose.

The choice of artistic in preference to inartistic forms should be steadily cultivated in pupils' constructions, and this involves a study and discussion of standard art-forms and ideas (History of Art and Industries).

In addition to the above-described body of ideas requiring presentation and mastery, direct experience with materials and tools in the work of construction develops skill and technique.

The preliminary clarification of ideas, which should precede actual construction, will often require a full recitation period, and even outside study. Frequently a working drawing must be wrought out as a means of more clearly grasping and combining the new body of ideas.

2. Each primary industry, such as house-building, sewing, pottery, weaving, and bookbinding, contains a development of ideas which furnishes the outline of topics in that industry. It involves a movement from simple, primitive forms of work, to later, more complex processes and tools.

The units of construction incorporating the ideas of any craft are real objects of interest and value, as a garment, a house, a sled, a rug, a book. They are not fragments or mere elements of construction.

3. In the period of the common school, children should gradually gain an acquaintance with ideas of design and modes of construction, with materials and tools, and should acquire such skill in construction as is reasonably within the power of those who are immature and growing. Expert professional skill and perfection of technical workmanship are not controlling aims in the manual work of the common school.

4. The industries chiefly involved in the manual

training course should be fundamental types of occupation and of technical art, and as types they suggest a sharp power of interpretation when applied to closely allied industries.

One purpose of manual training is to equip children with the controlling ideas and experiences of the primary industrial arts, and to make them a valuable means of interpreting industrial and social life.

Manual training serves, therefore, to instruct and train young minds practically and intimately with the fundamental arts of life.

5. Manual training can open up only a few of the main lines of construction and must give its chief attention to this prescribed work.

The wider application of constructive ideas and processes lies in the field of other studies, as geography, history, science, literature, and the home.

The manual arts, having a distinct and important field of their own to cultivate, only incidentally and indirectly can look after constructions needed in other studies.

But the thought series worked out in the manual arts runs parallel to the most important topics in history, geography, and applied science. In other words, there is a deep underlying connection and parallelism of ideas in these separate branches of study.

6. The series of constructions proposed in the manual arts course is a direct response to the strong impulse toward motor activity which is everywhere

manifest in children. It is designed to give natural expression to a great variety of motor impulses and to make this active, expressive development coincident with the expansion of the whole physical and mental life. This perpetual interaction of the physical and mental can be well provided through a wisely selected course in the manual arts.

7. The manual arts outlined for the schools naturally involve the cultivation of the art sense. The natural development of every craft is toward better, choicer art-forms. In children also the crude art sense is strongly in evidence, and requires only guidance and suitable means of cultivation. In each school handicraft there should be a conscious selection of the better art-forms in construction. Weak and inartistic forms of construction abound and should be avoided.

This cultivation of the art sense in constructive exercises is also in harmony with the rapidly growing demand for real art-forms in all the industries.

The incorporation of the art impulse into all the manual arts of the school, lifts this subject to a high plane and makes it coördinate with literature, history, and science as a liberal study.

The following outline of work in the Manual Arts is designed to give a free and abundant outlet to the work impulses and motor activities of children.

In primary and intermediate grades some of the

constructions are representative in character, allowing of the use of simple material, as of paper or cardboard instead of wood in house building. In other cases the ordinary materials, tools, and processes are employed, as in weaving, sewing, and book making.

These activities fall naturally in primary grades into rudimentary forms of certain crafts or trades, each of which may require several kinds of materials, a variety of tools, and a series of processes.

By directing the efforts of children along the lines of typical and universal trades or handicrafts, we are giving them a practical introduction (1) to present-day processes and industries as they are; (2) to the historical evolution of trades from primitive conditions so far as this suits the purposes of education; (3) to a far better appreciation of the industries treated in geography, history, and other studies; (4) to a somewhat general and versatile experience with skilled crafts as a broad preliminary training for industrial life; (5) to those units of constructive effort which the various handicrafts set up, such as houses, tables, dresses, books, baskets, mats, hammocks, etc. Such wholes are the natural and appropriate units of effort in the manual work of the schools.

When children are thus healthily occupied upon manual work suitable to their powers and interests, other important results are attained as follows: (1) a mind-and-sense training in observing form, size,

proportion, and relation; (2) a rising consciousness of efficiency and power; (3) the growth of leadership and mutual helpfulness through coöperation; (4) the development of patience and perseverance in working out definite constructions to completeness; (5) an increasing control of mental and muscular powers leading to moderate skill with many kinds of tools and materials.

In the following course of study the Supplementary Problems marked *B* are added to the primary series, showing further applications of the same constructive ideas.

MANUAL ARTS

GRADES I AND II

I. *Book Making:*

Problems requiring some acquaintance with book materials; some choice in the selection of materials; some experiences in the processes of folding, sewing, and trimming the parts intended to form a simple book.

1. Book for pictures and free cuttings; Melton or other cover paper in colors for book and cover; assembling, punching, and lacing with cord or ribbon.
2. Word-book for lists of words; sheets of book or other blank paper for book, with manila or linen for cover; folding, cutting, assembling, sewing, trimming.

3. Portfolio for holding drawings and clippings; manila and leatherette for cover; binder's cloth for hinge and tape for tying; folding, cutting, pasting, trimming.

II. *Weaving:*

Problems (*A*) involving "over and under" on looms with heddle and needle, using such materials as jute or coarse yarn in colors.

1. Rug for doll house; plain jute with warp ends worked into fringe.
2. Blanket for doll bed; yarn, ends of warp worked in and out, end stripes.
3. Doll's hammock; cotton warp, ends caught up in rings; woof of braid or tape.
4. Candy baskets woven from paper strips, plain and in colors; with and without handles.

(*B*) Supplementary Problems.

1. Mat of plain and dyed raffia.
2. Bag of plain and dyed raffia.
3. Chains and garlands made up of plain and colored paper for tree and room decorations.
4. Doll skirts, hats, and mitts woven from yarn on notched cardboard forms.

III. *Apparatus Making:*

Problems (*A*) involving measuring, sawing, assembling, nailing, staining.

1. Leaf press of $\frac{1}{4}''$ or $\frac{3}{8}''$ soft wood strips, brads, and cord.
2. Boxes for seeds, sand, or plants of $\frac{1}{4}''$ or $\frac{1}{2}''$ soft wood.
3. Loom of $\frac{1}{2}''$ board, and $\frac{7}{8}''$ strip of soft wood, and $1\frac{1}{4}''$ nails.

(*B*) Supplementary Problems.

1. Trellis or ladder for flowers, of $\frac{1}{4}''$ and $\frac{1}{2}''$ strips of soft wood.
2. Pinwheel; square of paper, large pin, and strip of soft wood.
3. Trays for paste of folding Bristol.
4. Boxes for crayons from Bristol or jute board.

IV. *Toy Making:*

Problems (*A*) involving ideas of size and proportion; simple joining of parts by gluing, nailing, pasting, or lacing.

1. Cradle, bed, table, chair, cupboard made from paper, cardboard, reeds and raffia, soft wood.
2. Cups, plates, bowls from clay with Indian decoration.
3. Carts, sleds, sailboats of Bristol board, cloth, soft wood strips.
4. Doll house of Bristol board, $\frac{1}{4}''$ or $\frac{1}{2}''$ soft wood.
5. Representation of village street with

church, school, houses, fences, walks, etc.

(*B*) Supplementary Problems.

1. Wigwams, tents of paper and cloth, reeds and raffia.
2. Canoes, moccasins, of paper, birch bark, cloth.
3. Spears, bows and arrows of wood and cord.
4. Pipes of clay.
5. Representation of Indian village.
6. Animal forms in clay.
7. Bricks for Eskimo house.
8. Plaques in low-relief designs in clay.
9. Lanterns of paper and cardboard.
10. Dolls and doll dresses from paper.

GRADES III AND IV

I. *Book Making:*

Problems requiring a more detailed acquaintance with materials and processes used in making (*a*) the book proper, (*b*) the book cover, with a view to obtaining a serviceable, artistic product.

1. Note-book; strawboard, leatherette, and manila for cover, book or writing paper for book, binder's cloth and cambric for hinge; folding, assembling, sewing and pasting, pressing and cutting.

2. Art-book: strawboard and leatherette for cover; Melton or other cover paper for book made up of sections folded and sewed, or sheets punched and held by ribbons.

II. *Weaving:*

Problems (*A*) requiring some knowledge of mats and baskets, both as to structure and design.

1. Rattan mats Nos. 3 and 1, — plain and in colors.
2. Rattan baskets with and without covers and handles.
3. Tied-stitch rattan and raffia baskets in design.

(*B*) Supplementary Problems.

1. Splint baskets with handles.
2. Braided and knotted raffia belts and bookmarks.

III. *Sewing:*

Problems:

1. Doll rugs of burlaps, canvas, or scrim.
2. Pin cases of coarse fabrics.
3. Pin balls and cushions of wood braid, canvas, or silk.
4. Boxes covered with cretonne or sateen.
5. Iron-holders of felt, burlaps, canvas, gingham, or sateen.

6. Bean-bags of unbleached cotton, sateen, gingham, or denim.
7. Pencil cases of felt.

IV. *Apparatus Making:*

Problems (*A*) requiring some experience in laying out simple drawings, planing, and testing with try-square, boring holes, gluing, and nailing; joining parts of cardboard by laps, by punching and lacing.

1. Sun-dial in $\frac{1}{4}''$ soft wood.
2. Weather-vane in $\frac{1}{4}''$ or $\frac{1}{2}''$ soft wood.
3. Molds for brick and plaques.

(*B*) Supplementary Problems.

1. Dutch windmill of $\frac{1}{4}''$ soft wood and cardboard.
2. Bird house of $\frac{1}{4}''$ and $\frac{1}{2}''$ soft wood.
3. Insect case of cardboard with glass top.

V. *Toy Making:*

Problems (*A*) requiring elementary working drawings; adaptation of paper, cardboard, and wood to work of representation.

1. Games of ring toss and bean bag.
2. Kites and balloons in paper, wood strips, cord, and cloth.

(*B*) Supplementary Problems.

1. Representation of merry-go-round in cardboard and wood.
2. Representation of toboggan slide.
3. Representation of freight and passenger

cars and station in paper and cardboard.

4. Representation of hook and ladder and cart in engine house.

VI. *House Building:*

Problems (*A*) involving some knowledge of plans and elevations of houses and methods of representing same; some acquaintance with arrangement of rooms; methods of building.

1. Model of pioneer's log house made of small limbs and twigs.
2. Representation of Greek house in cardboard.
3. Representation of Eskimo house in clay.

(*B*) Supplementary Problems.

1. Model of stockade and blockhouse.
2. Representation of engine house in cardboard.

VII. *Brick Making:*

Problems involving simple method of molding, stacking, and burning brick in a kiln; qualities of clay necessary for making brick.

1. Making of common brick.
2. Making of fire-clay brick.
3. Construction of a brick kiln.